

Directors
Mike Duran, *President*
William Teague, *Vice President*
Dennis Coleman, *Secretary*
Debra Canero, *Director*
Scott Sear, *Director*
General Manager
Beverli A. Marshall

**REGULAR MEETING OF THE
BOARD OF DIRECTORS
Tuesday, October 8, 2019, 1:00 p.m.**

AGENDA

VALLEY SANITARY DISTRICT BOARD ROOM
45-500 VAN BUREN STREET
INDIO, CA 92201

RESOLUTION NO. 2019-1123
ORDINANCE NO. 2019-120
MINUTE ORDER NO. 2019-2947

1. CALL TO ORDER

- a. Roll Call
- b. Pledge of Allegiance

2. PUBLIC COMMENT

This is the time set aside for public comment on any item not appearing on the agenda. Please notify the Secretary in advance of the meeting if you wish to speak on a non-hearing item.

3. CONSENT CALENDAR

Consent calendar items are expected to be routine and noncontroversial, to be acted upon by the Board of Directors at one time, without discussion. If any Board member requests that an item be removed from the consent calendar, it will be removed so that it may be acted upon separately.

- a. Consideration of the September 24, 2019 Regular Meeting Minutes
([Attachment](#))
- b. Approval of Expenditures for September 19, 2019, to October 2, 2019
([Attachment](#))

MINUTE ORDER NO.

4. NON-HEARING ITEMS

- a. Authorize District Issued Cell Phones for Directors ([Attachment](#))

MINUTE ORDER NO.

- b. Discuss Process for Transition to Election of Directors by Wards and Provide Direction to Staff ([Attachment](#))

MINUTE ORDER NO.

- c. Adopt the Second Monday of October as Indigenous Peoples' Day as an Officially Recognized Valley Sanitary District Holiday ([Attachment](#))

MINUTE ORDER NO.

- d. Authorize the General Manager to Execute a Contract with Engineering Solutions Services, Inc. for As-Needed Grant Assistance Support Services in an Amount Not to Exceed \$50,000 for Fiscal Year 2019/20 ([Attachment](#))

MINUTE ORDER NO.

- e. Request Permission to Allow Volunteer Apiary on Valley Sanitary District Property to Support Local Bee Population and Harvest "#2 Gold" Honey as an Environmental Demonstration Project ([Attachment](#))

MINUTE ORDER NO.

- f. Staff Updates

5. DIRECTOR'S ITEMS

Director's items not listed are for discussion only; no action will be taken without an urgency vote pursuant to State law.

6. ADJOURNMENT

Adjourn in recognition of California Water Professionals Appreciation Week, which is October 5 – 13, 2019, to encourage all water professionals, agencies, and firms to get out and celebrate all the amazing people who work in this industry.



Pursuant to the Brown Act, items may not be added to this agenda unless the Secretary to the Board has at least 72 hours advance notice prior to the time and date posted on this notice.

POSTED October 3, 2019

Holly Gould

Holly Gould, Clerk of the Board
Valley Sanitary District

PUBLIC NOTICE

In compliance with the Americans with Disabilities Act, access to the Board Room and Public Restrooms has been made. If you need special assistance to participate in this meeting, please contact Valley Sanitary District (760) 235-5400. Notification 48 hours prior to the meeting will enable the District to make reasonable arrangements to ensure accessibility to this meeting (28 CFR 35.102-35.104 ADA TITLE II). All public records related to open session items contained on this Agenda are available upon request at the Administrative Office of Valley Sanitary District located at 45-500 Van Buren Street, Indio, CA 92201. Copies of public records are subject to fees and charges for reproduction.

**VALLEY SANITARY DISTRICT
MINUTES OF REGULAR BOARD MEETING
September 24, 2019**

A regular Board Meeting of the Governing Board of Valley Sanitary District (VSD) was held at the District offices, 45-500 Van Buren Street, Indio, California, on Tuesday, September 10, 2019.

1. CALL TO ORDER

President Mike Duran called the meeting to order at 1:00 p.m.

a. Roll Call

Directors Present: Mike Duran, William Teague, Dennis Coleman, Debra Canero and Scott Sear

Staff Present: Beverli A. Marshall, General Manager, Holly Gould, Ian Wilson, Stephanie Jiron, and Marin Gutierrez

Guests: Bob Hargreaves, Best Best & Krieger
Matt Disher, Southwest Networks

b. Pledge of Allegiance

2. PUBLIC COMMENT

This is the time set aside for public comment on any item to be discussed in Closed Session.

None.

3. CONVENE IN CLOSED SESSION

Items discussed in Closed Session comply with the Ralph M. Brown Act.

The Board adjourned to closed session at 1:04 p.m.

4. CONVENE IN OPEN SESSION

The Board reconvened to open session at 1:05 p.m. President Duran stated that there was nothing to report.

5. PUBLIC COMMENT

This is the time set aside for public comment on any item not appearing on the agenda. Please notify the Secretary in advance of the meeting if you wish to speak on a non-hearing item.

Ms. Marshall introduced the new employees to the Board. Marin Gutierrez, Collections System Maintenance Technician Grade I, and Stephanie Jiron, Laboratory Technician. Ian Wilson thanked the Board for approving the additional staff.

6. CONSENT CALENDAR

- a. Consideration of the September 10, 2019 Regular Board Meeting Minutes
 - b. Approval of Expenditures for September 11, 2019 to September 18, 2019
 - c. Summary of Cash and Investments for August 2019
 - d. Authorize the General Manager to Submit a Letter Requesting that Governor Newsom Veto Assembly Bill 1184 (Gloria)
 - e. Authorize the General Manager to Submit a Letter Requesting that Governor Newsom Veto Senate Bill 13 (Wieckowski)
 - f. Designate Identified Items as Surplus Equipment and Authorize Disposition as Appropriate
-

ACTION TAKEN:

MOTION:

Vice President Teague made a motion to approve the consent calendar as presented. Director Sear seconded the motion. Motion carried by the following vote: 5 ayes

MINUTE ORDER NO. 2019-2943

7. NON-HEARING ITEMS

- a. Information Report by Southwest Networks on Systems Implemented to Combat Cybersecurity Risks
-

Matt Disher, President of Southwest Networks, the District's computer consultants, gave an informational report on the systems implemented at the District to combat cybersecurity risks. He explained what the District has in place currently and what will be implemented in the future in terms of advanced email protections.

- b. Update on Status of Application to EPA Region IX Filed by Cabazon Band of Mission Indians for Treatment in a Similar Manner as a State with Respect to Certain Federal Water Quality Programs
-

In April 2018, the Cabazon Band of Mission Indians submitted an application to the EPA's Region 9 for treatment in a similar manner as a state with respect to water quality programs. Since VSD discharges into the Whitewater River (Coachella Valley Stormwater Channel), which crosses tribal lands, the District could be affected by the approval of this application. Mr. Hargreaves stated that the expectation is that this application will be approved and when it is the tribe will be able to set its own water quality standards for the District's discharge. Ms. Marshall has reached out to the tribe for updates and will continue to do so.

c. Discuss General Counsel Attending All Board Meetings and Provide Direction

In the past, the District's General Counsel has not regularly attended board meetings. It was the consensus of the Board to have Counsel start attending all board meetings so that they are more familiar with what's going on. It would also provide answers and advice in real time should the need arise.

d. Adopt Purchasing Policy and Rescind Previously Adopted Policy Language

The Board of Directors adopted a comprehensive Procurement & Purchasing Policy on November 8, 2011. It was updated and approved on March 26, 2013. To comply with current regulatory requirements, and as part of the District's mission to be more efficient and transparent, staff has updated the policy for the Board's consideration. Director Canero was concerned that increasing the General Manager's spending authority from \$15,000 to \$30,000 was too much for service contracts and feels a lower amount was more appropriate. Secretary Coleman suggested adding service contracts to the consent calendar as a way to keep the Board informed. Secretary Coleman inquired as to why there was no limit for the General Manager for emergency purchases. Ms. Marshall stated that since she can get Board authority by utilizing a 24-hour emergency meeting that she did not feel the need to include an amount in the policy.

ACTION TAKEN:

MOTION:

Vice President Teague made a motion to adopt the Valley Sanitary District Purchasing Policy and Rescind Previously Adopted Policy Language. Secretary Coleman seconded the motion. Motion carried by the following roll call vote:

MINUTE ORDER NO. 2019-2944

AYES: Coleman, Duran, Sear, Teague
NOES: Canero
ABSENT: None
ABSTAIN: None

e. Adopt the Valley Sanitary District Employee Mentorship Program Policy

To retain skilled employees and develop future leaders, it's critical to understand employee career objectives and align them with organizational goals. Career mentoring enables both career development and leadership development to help employees gain new skills and feel engaged with co-workers and the organization. This traditional one-to-one mentoring relationship will last 6-12 months. The mentoring program will be available to new hires and employees changing departments. The mentor's will receive a five percent (5%) differential during their assignment.

ACTION TAKEN:

MOTION:

Director Canero made a motion to adopt the Valley Sanitary District Employees Mentorship Program. Secretary Coleman seconded the motion. Motion carried by the following roll call vote:

MINUTE ORDER NO. 2019-2945

AYES: Canero, Coleman, Duran, Sear, Teague
NOES: None
ABSENT: None
ABSTAIN: None

- f. Award Contract to Carollo Engineers, Inc. for the Sewer Siphon Replacement Crossing of the Coachella Stormwater Channel in an Amount Not to Exceed \$126,778

On April 23, 2019, the Board authorized the General Manager to enter into a contract with Carollo Engineers, Inc. (Carollo) for a not to exceed price of \$125,534 for the preliminary design of the replacement of the sewer siphon. On June 25, 2019, the Board authorized the General Manager to enter into an Addendum to the contract for \$25,515 for survey work needed as part of the preliminary design, of which IWA agreed to share half this cost. As a result of additional meetings with CVWD, it has been determined that a Scour Analysis needs to be performed to determine the appropriate depth of the proposed sewer main crossing underneath the storm channel. The total cost of this proposal is \$126,778, which will be added by addendum to the original contract. The revised total contract amount is \$277,827 (originally \$125,534). Up to \$76,146.50 will be reimbursed by the City of Indio (Indio Water Authority) for their shared portion of the additional cost.

ACTION TAKEN:

MOTION:

Secretary Coleman made a motion to authorize the General Manager to execute a contract addendum to Carollo Engineers, Inc. to perform a Scour Analysis and provide a Geotechnical Report for the sewer siphon replacement project not to exceed \$126,778. Director Sear seconded the motion. Motion carried by the following roll call vote:

MINUTE ORDER NO. 2019-2946

AYES: Canero, Coleman, Duran, Sear, Teague
NOES: None
ABSENT: None
ABSTAIN: None

- g. Staff Notes

Ms. Marshall presented the Board with the staff notes. She stated that she is waiting to hear back from Martin Rausch to schedule a strategic planning workshop.

8. DIRECTOR'S ITEMS

Director's items not listed are for discussion only; no action will be taken without an urgency vote pursuant to State law.

Director Canero stated that she will be on vacation from October 23 – 31, 2019. Secretary Coleman informed the Board that he will be having surgery the second week in November. Ms. Marshall requested direction from the Board whether to go out for proposals for the staffing analysis or to do it in-house. The board preferred Ms. Marshall conduct the analysis in-house.

9. INFORMATIONAL ITEMS

- a. Combined Monthly Account Summary for August 2019
 - b. Monthly Income Summary for August 2019
-

10. ADJOURNMENT

There being no further business to discuss, the meeting was adjourned at 2:58 p.m., and the next board meeting will be a Regular Meeting held October 8, 2019.

Respectfully submitted,

Holly Gould, Clerk of the Board
Valley Sanitary District

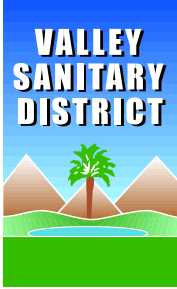
DISBURSEMENTS
Approved at the Board Meeting of
October 3, 2019

| | | |
|--|---|--------------|
| 37612 Air & Hose Source, Inc. | Hose Swivel | \$353.98 |
| 37613 Alliance Integration | Inspection of Phone Lines for Alarms | \$330.00 |
| 37614 Augustine Tijeina | Work Boot Reimbursement | \$98.12 |
| 37615 Automation Pride | Reprogram of Gate Key Pad | \$571.88 |
| 37616 Best, Best & Krieger | Legal Services for August 2019 | \$5,615.94 |
| 37617 Beverli Marshall | CSDA Conference Reimbursement | \$465.58 |
| 37618 Caltest Analytical Laboratory | Monthly NPDES Samples | \$653.00 |
| 37618 Caltest Analytical Laboratory | Weekly NPDES Samples | \$330.00 |
| 37619 Cintas Corp | Uniforms, Mats, Towels, Etc for Week of 09/03/2019 | \$550.68 |
| 37619 Cintas Corp | Uniforms, Mats, Towels, Etc for Week of 09/09/2019 | \$501.84 |
| 37619 Cintas Corp | Uniforms, Mats, Towels, Etc for Week of 09/16/2019 | \$515.26 |
| 37619 Cintas Corp | Uniforms, Mats, Towels, Etc for Week of 09/23/2019 | \$679.29 |
| 37619 Cintas Corp | Uniforms, Mats, Towels, Etc for Week of 09/30/2019 | \$553.74 |
| 37619 Cintas Corp | Uniforms, Mats, Towels, Etc - price adjustments / credits | (\$1,899.78) |
| 37620 Core & Main LP | Parts for Flow Meter Installation | \$49.61 |
| 37621 Debra Canero | CSDA Conference Reimbursement | \$313.08 |
| 37622 Dennis Coleman | CSDA Conference Reimbursement | \$769.92 |
| 37623 Desert Electric Supply | Parts for Enclave Installation | \$68.21 |
| 37624 Desert Hose & Supply | Hoses for Kenworth Vactor | \$471.98 |
| 37624 Desert Hose & Supply | Hoses for Vactor Trucks | \$494.81 |
| 37625 Desert Steel Supply | Concrete Bracing | \$290.35 |
| 37626 Endura Steel, Inc. | Stainless Steel for Drainline Repair | \$2,280.53 |
| 37627 Equipment Direct | Safety Glasses & Hats | \$160.46 |
| 37628 Fastenal Company | Hardware Replacement | \$162.37 |
| 37628 Fastenal Company | Bolts | \$77.81 |
| 37628 Fastenal Company | Restock Hardware | \$54.71 |
| 37629 Fisher Scientific | Total Chlorine Standards | \$122.26 |
| 37630 Grainger | Wash Bottles and Storage Jars | \$21.21 |
| 37631 Hach Company | COD Vials & TSS Filters for Lab | \$600.19 |
| 37631 Hach Company | Lab Supplies | \$482.41 |
| 37631 Hach Company | Lab Supplies | \$5.44 |
| 37632 Harris & Associates | *PADM for Collection System Phase 2 | \$20,001.50 |
| 37633 JB Finish, Inc. | New Doors for Blower Building | \$2,189.47 |
| 37634 Kaman Industrial Technologies | Belts | \$51.68 |
| 37635 McMaster-Carr Supply Co. | Installation Parts for Lab Enclave | \$50.82 |
| 37636 Mike Duran | CSDA Conference Reimbursement | \$314.24 |
| 37637 National Association of Clean Water Agencies | Toilets Are Not Trashcans Stickers | \$775.00 |
| 37638 Paul Associates, LLC | Business Cards | \$93.32 |
| 37639 Petty Cash | Replenish Petty Cash | \$345.21 |
| 37640 Pitney Bowes, Inc. | Postage Meter Rental Fee | \$127.24 |
| 37641 Plumbers Depot Inc. | Pedestal Crane for CCTV Van | \$4,246.63 |
| 37642 Praxair Distribution, Inc. | Tank Rentals | \$122.41 |
| 37642 Praxair Distribution, Inc. | Gas Tank | \$116.69 |
| 37643 Quinn Company | Repair Skid Steer A/C System | \$3,009.88 |
| 37644 ReadyRefresh by Nestle | Bottled Water for September 2019 | \$820.93 |
| 37645 Safety-Kleen Systems, Inc. | Parts Washer | \$619.03 |
| 37646 San Diego Scale Company, Inc. | Analytical Balance Replacement | \$4,148.81 |
| 37647 Scott Sear | CSDA Conference Reimbursement | \$344.24 |
| 37648 Southwest Networks, Inc. | Office 365 | \$87.50 |
| 37648 Southwest Networks, Inc. | Technical Support for September 2019 | \$902.50 |
| 37648 Southwest Networks, Inc. | Guardian Aware for October 2019 | \$104.00 |
| 37648 Southwest Networks, Inc. | Office 365 Business Premium | \$495.00 |
| 37649 Stephanie Jiron | Work Boots Reimbursement | \$140.39 |
| 37650 Swains Electric Motor Service | Gas Compressor Rebuild | \$749.77 |
| 37650 Swains Electric Motor Service | Recirculation Pump Rebuild | \$2,844.39 |
| 37651 Tops 'N Barricades Inc. | Traffic Control Sign Patch | \$63.40 |
| 37651 Tops 'N Barricades Inc. | Traffic Control Sign & Stand | \$301.94 |
| 37651 Tops 'N Barricades Inc. | Safety Vest | \$19.85 |
| 37652 Trimax Systems, Inc. | * Influent PLC | \$44,315.00 |
| 37653 Underground Service Alert | Dig Alerts for September 2019 | \$153.55 |
| 37653 Underground Service Alert | Dig Safe Board Fee | \$82.93 |
| 37654 United Way of the Desert | PR 09/05/2019 - 09/19/2019 PD 09/27/2019 | \$50.00 |
| 37655 Univar Solutions | Sodium Hypochlorite | \$6,978.49 |
| 37655 Univar Solutions | Sodium Bisulfite | \$5,065.58 |
| 37655 Univar Solutions | Ferric Chloride | \$5,517.11 |
| 37656 USA Blue Book | Sludge Judge Extensions | \$201.04 |
| 37656 USA Blue Book | Sample Bottles | \$176.69 |
| 37656 USA Blue Book | Restock First Aid Kits | \$821.40 |
| 37657 Vantage Point Transfer Agents - ICMA | PR 09/05/2019 - 09/19/2019 PD 09/27/2019 | \$1,445.00 |
| 201909251 TASC | FSA - Administration Fees - Oct - Dec 2019 | \$197.61 |
| 201909261 CalPERS 457 | PR 08/23/2019 - 09/05/2019 PD 09/13/2019 | \$750.00 |
| 201909261 CalPERS 457 | PR 09/05/2019 - 09/19/2019 PD 09/27/2019 | \$750.00 |
| 201909262 CalPERS Retirement | PR 08/23/2019 - 09/05/2019 PD 09/13/2019 | \$16,471.96 |
| 201909262 CalPERS Retirement | PR 09/05/2019 - 09/19/2019 PD 09/27/2019 | \$16,471.45 |
| 201909271 Paychex - Direct Deposit | PR 09/05/2019 - 09/19/2019 PD 09/27/2019 | \$62,047.81 |
| 201909272 Paychex - Fee | PR 09/05/2019 - 09/19/2019 PD 09/27/2019 | \$151.55 |

| | | |
|--|--|--------------|
| 201909273 Paychex - Tax | PR 09/05/2019 - 09/19/2019 PD 09/27/2019 | \$29,891.98 |
| 201909274 MassMutual | PR 09/05/2019 - 09/19/2019 PD 09/27/2019 | \$10.00 |
| 201909275 Nationwide Retirement Solution | PR 09/05/2019 - 09/19/2019 PD 09/27/2019 | \$2,032.52 |
| 201909301 Domino Solar LTD | Electricity for August 2019 | \$10,569.73 |
| 201909302 TASC | PR 09/05/2019 - 09/19/2019 PD 09/27/2019 | \$296.14 |
| 201910011 Imperial Irrigation District | Electricity for August 2019 | \$35,809.68 |
| 201910012 Indio Water Authority | Water for August 2019 | \$1,687.25 |
| 201910013 Standard Insurance Company | Life and Disability Insurance for October 2019 | \$1,684.24 |
| 201910014 Sun Life Financial | Vision Insurance for October 2019 | \$698.98 |
| 201910041 Verizon Wireless | Cell Service for September 2019 | \$512.78 |
| *Capital Expenditures | | \$303,671.19 |

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KCH



Valley Sanitary District
Board of Directors Meeting
October 8, 2019

TO: Board of Directors
THROUGH: Beverli A. Marshall, General Manager
SUBJECT: **Authorize District Issued Cell Phones for Directors**

| | | |
|--|---|---|
| <input checked="" type="checkbox"/> Board Action | <input type="checkbox"/> New Budget Approval | <input type="checkbox"/> Contract Award |
| <input type="checkbox"/> Board Information | <input checked="" type="checkbox"/> Existing FY Approved Budget | <input type="checkbox"/> Closed Session |

Executive Summary

The purpose of this report is for the Board to discuss providing cell phones to directors for conducting district-related business.

Fiscal Impact

The fiscal impact is approximately \$55 per phone, for a total cost of \$2,500 for the remainder of FY 2019/20. I believe that this cost will be able to fit within the adopted budget through cost savings in other areas.

Background

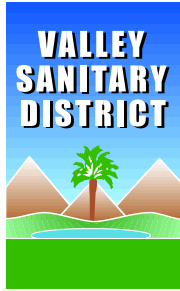
The Public Records Act requires that all forms of district-related business communications (e-mail, text messages, phone call records, etc.) be made available to the public if requested. If directors conduct business using their personal cell phones, it could subject all communications, personal or district-related, on that device to future public records requests. If it chooses, the Board could vote to provide cell phones for district-related business.

Recommendation

Staff recommends that the Board of Directors vote to provide cell phones to directors and pay for the costs associated with the district-issued devices.

Attachments:

None



**Valley Sanitary District
Board of Directors Meeting
October 8, 2019**

TO: Board of Directors

THROUGH: Beverli A. Marshall, General Manager

SUBJECT: **Discuss Process for Transition to Election of Directors by Ward and Provide Direction to Staff**

| | | |
|--|--|---|
| <input checked="" type="checkbox"/> Board Action | <input type="checkbox"/> New Budget Approval | <input type="checkbox"/> Contract Award |
| <input type="checkbox"/> Board Information | <input type="checkbox"/> Existing FY Approved Budget | <input type="checkbox"/> Closed Session |

Executive Summary

The purpose of this report is for the Board to discuss transitioning to election of directors by wards.

Fiscal Impact

The fiscal impact is primarily the cost of gathering the data and the public noticing process. Staff has requested a quote from National Demographics Corporation, which is the consulting firm that provided the data for the City of Indio.

Background

The California Voting Rights Act (CVRA) was enacted in 2001 to address disparities between ethnic demographics and elected officials. The CVRA prohibits special districts like VSD from using the “at-large” method of election that may impair the ability of a protected class from electing candidates of its choice or influencing the outcome of an election to their benefit. In other words, without ward-based elections, their voice might be diluted by the combined total of all voters.

The City of Indio hired a consultant, the National Demographics Corporation, to determine if ward-based elections were warranted. The analysis identified the following key issues with regards to the Latino community and its representation within the City.

- 68% of the City’s total population
- 56% of the eligible voters
- 55% of registered voters
- 40% - 45% of voters casting ballots
- most concentrated in central and northwestern Indio

Based on that analysis, and subsequent public input, the City adopted an ordinance in 2017 to move to district-based elections. The districts established by the City are identified in the attached map (Attachment A).

To date, over 300 cities and special districts have changed to district-based elections. Typically, plaintiffs send a written notice (demand letter) before filing a lawsuit. There is a 45-day waiting period in which the receiving agency must adopt a resolution rather than going to court. If the agency chooses to go to court, there is a high likelihood that the plaintiffs would prevail and would have to pay the plaintiffs legal fees up to \$30,000. Rather than waiting to receive such a complaint, staff recommends that VSD voluntarily convert to ward-based elections.

The first step is to gather data on the demographics of VSD's service area. Although the VSD service area is substantively the same as the City of Indio, it is not identical to the City's boundary. To reduce the overall cost of gathering data, staff recommends using the same consultant that assisted the City of Indio. Based on the outcome of the data, the Board can decide on how to proceed with ward-based elections.

AB 350 established the steps to transition to proceed. The steps are outlined in the PowerPoint presentation provided at the CSDA Annual Conference in Anaheim (Attachment B) last month. If initiated immediately, VSD could complete the process, including adopting the map and wards, for the November 2020 general election.

Recommendation

Staff recommends that the Board of Directors direct staff to take the necessary steps to start the process to implement ward-based elections with a target of the November 2020 general election.

Attachments

Attachment A: Map of City of Indio Election Districts

Attachment B: PowerPoint Presentation from CSDA Conference 2019

District Elections and the California Voting Rights Act: Who is Targeted, and What Happens When you are Challenged?

Sean D. De Burgh

Cota Cole & Huber LLP

Douglas Johnson

National Demographics Corporation



2018 CSDA Annual Conference and Exhibit Showcase
MORE THAN A CONFERENCE

How is the CVRA Violated?

- The CVRA prohibits any *political subdivision* from using any *at-large method of election* that “impairs the ability of a *protected class* to elect candidates of its choice or influence the outcome of an election, as a result of the dilution or the abridgement of the rights of voters are members of the protected class...”



2018 CSDA Annual Conference and Exhibit Showcase
MORE THAN A CONFERENCE

Defined Terms:

- “Political subdivisions” are units of government within the state and, at the local level, include cities, counties, and—of course—special districts.
- An “at-large method of election” is a system of voting in which voters within an entire jurisdiction elect the members of the governing body. If there are two positions open on a local board, for example, candidates would run as a group and the top two vote getters would be seated following the election. In California, this is the most common way special district governing boards are elected.
- A “protected class” means a class of voters who belong to *any* “race, color, or language minority group.” It is possible for one minority group’s voting rights to be diluted even though other minority groups’ rights are not violated. In California, the most common CVRA claims involve African-American, Latino, and Asian-American populations Elec. Code, § 14026(c).



2018 CSDA Annual Conference and Exhibit Showcase
MORE THAN A CONFERENCE

When Does “Racially Polarized Voting” Exist?

- RPV exists when there is a difference in how members of a protected class vote versus members not within the protected class. Sometimes this phenomenon is referred to as “bloc voting.” Elec. Code, § 14026(e).
- Whether RPV exists is generally determined by statistical analyses.
 - regression analysis
 - ecological inference



2018 CSDA Annual Conference and Exhibit Showcase
MORE THAN A CONFERENCE

Determining Whether RPV Exists

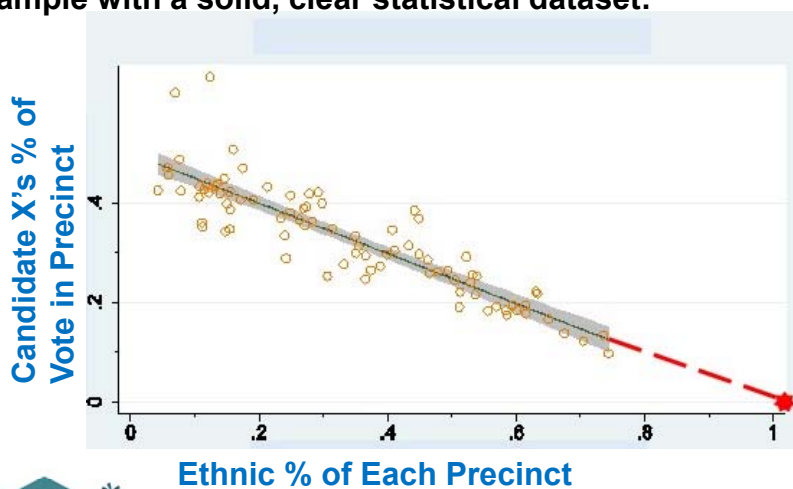
- The comparison is made between the group whose voting power is asserted to be diluted and *all other voters* outside that group.



2018 CSDA Annual Conference and Exhibit Showcase
MORE THAN A CONFERENCE

What is Racially Polarized Voting?

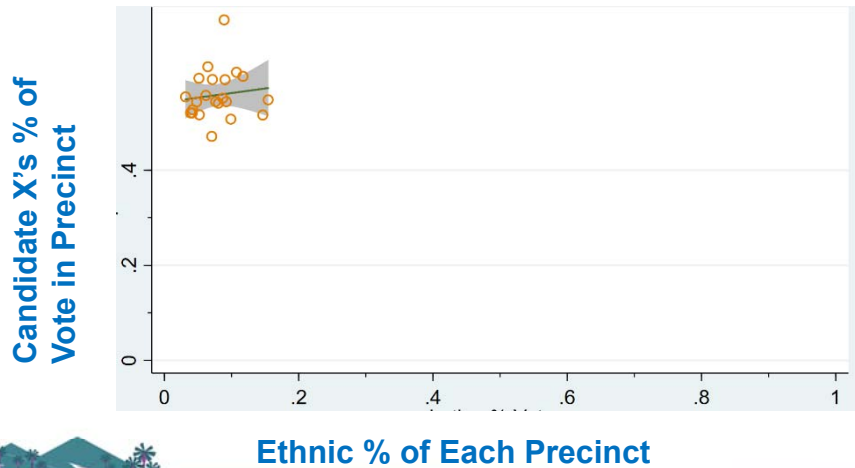
Example with a solid, clear statistical dataset:



2018 CSDA Annual Conference and Exhibit Showcase
MORE THAN A CONFERENCE

What is Racially Polarized Voting?

What we often get in the real world:



Elections Analyzed for Polarization:

- agency board elections
- elections involving other agencies (such as cities, counties, and school districts)
- state elections (for the Assembly, Senate or Propositions)
- ballot initiatives (state or local)



An agency's intent or lack of intent to discriminate also is not relevant in determining whether RPV exists



2018 CSDA Annual Conference and Exhibitor Showcase
MORE THAN A CONFERENCE

That candidates of a protected class have been elected to an agency's governing board does not negate a finding that RPV exists for that class.

Under the CVRA, the history regarding class members' success as candidates is only a *factor* that may be considered in determining the existence of RPV.



2018 CSDA Annual Conference and Exhibitor Showcase
MORE THAN A CONFERENCE

What is the Remedy for CVRA Violations?

- Court can order the agency to implement by-district elections
 - by-district elections, also referred to as “by-division” or “by-ward” elections, candidates reside within election districts that are divisible parts of the political subdivision and are elected only by voters that reside within those districts



Changes So Far

- At least ~~175~~ 202 school districts
- ~~100~~ 110 cities
- Over 30 community college districts
- At least 4 water-related special districts
- ~~7~~ 9 health care special districts
- 1 county (the only county that was not already by-district)
- 1 Community Service District
- 1 Library District
- 1 Utility District
- 2 Airport Districts
- 1 Recreation and Parks District



AB 350

Created a “safe harbor” by which agencies can voluntarily convert to by-district elections and avoid having to defend against CVRA lawsuits



2018 CSDA Annual Conference and Exhibitor Showcase
MORE THAN A CONFERENCE

What Should My District Do after Getting a CVRA Demand Letter?

- CVRA requires plaintiffs to first send a written notice, or demand letter, to an agency before filing suit.
- Plaintiff must wait at least 45 days before filing an action, affording the agency a safe-harbor period to consider converting from at-large to by-district elections.
- Agency must adopt a resolution within 45 days.



2018 CSDA Annual Conference and Exhibitor Showcase
MORE THAN A CONFERENCE

PLAN MEETING

In addition to meeting to consider the resolution, your agency should plan a separate—and earlier—meeting to discuss the potential CVRA litigation in closed session.



What Happens if Your District Sticks with its At-Large Voting System?

- The standard for proving proving a CVRA case is quite low.
- A successful plaintiff is *guaranteed* an award of attorney fees when he or she prevails.
- During any remedial phases of a CVRA lawsuit, the court makes the decision as to how and where district lines are drawn.



If Your District Follows AB 350

- Guaranteed to not pay more than \$30,000 in attorneys fees.
- *Your agency* controls the districting process and *your governing board* makes the final decision about how district lines are drawn



2018 CSDA Annual Conference and Exhibitor Showcase
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If Your District Agrees to Switch to By-District Elections – What Happens Next?

- First step is to adopt a resolution expressing its intention to do so within 45 days of receipt of the CVRA demand letter.
- Plan for the next 90 days to be a very busy time.
 - The Agency will be required to hold at least *four* public hearings as part of the AB 350 process
 - Agency must then publish a draft map (or maps) of the proposed districts
 - Agency must also publish the proposed election sequence



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Qualified Demographer

- It is essential that your agency have a qualified demographer to assist in, and even facilitate, the creation of districts.
- It is important that your district retain this consultant right away. He or she will need to begin working almost immediately after being retained to gather relevant Census and elections data and information.
- The demographer will also be instrumental in facilitating input from the public about communities of interest within your district (this concept is discussed below) and in drawing draft and final district maps.



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Public Outreach Essential

Although little time is provided to complete the process, your district should still consider public outreach a priority. A number of agencies that have converted to by-district elections have created special websites to describe the basics about the conversion process, outline the standards for creating districts, and provide notices and schedules of public hearings. Efforts to reach out to non-English speaking communities should also be encouraged



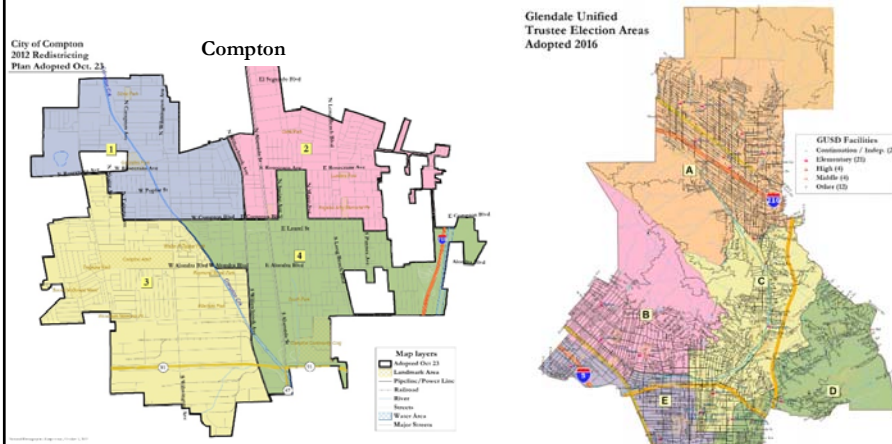
2015 CSDA Annual Conference and Exhibitor Showcase
MORE THAN A CONFERENCE

How are districts drawn?

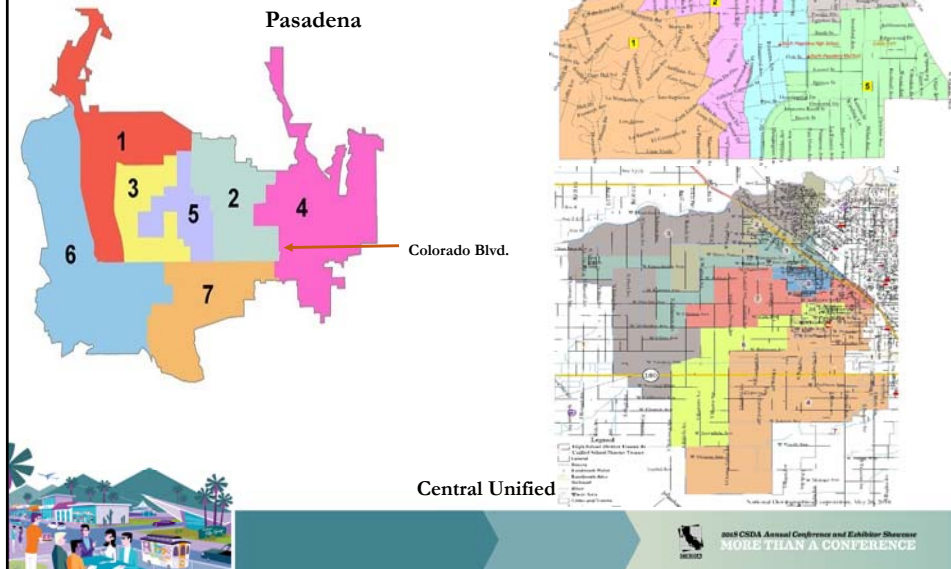
- Federal Laws
 - Equal population
 - Federal Voting Rights Act
 - No racial gerrymandering
- Traditional Redistricting Principles
 - Communities of interest
 - Compact & Contiguous
 - Follow visible (natural & man-made) boundaries
 - Respect for past voter decisions
 - Account for future population growth



Traditional (Compact) Maps



Non-Traditional Maps



When do By-District Elections Begin?

- The subject of when and how to start district elections is a tricky
- Delaying the creation of districts for the convenience of the existing elected officials may not remedy a CVRA violation.



What if My District Has yet to Receive a CRVA Demand Letter

Your district need not receive a CVRA demand letter to begin the process to switch to by-district elections. A district can move away from at-large voting systems at any time.

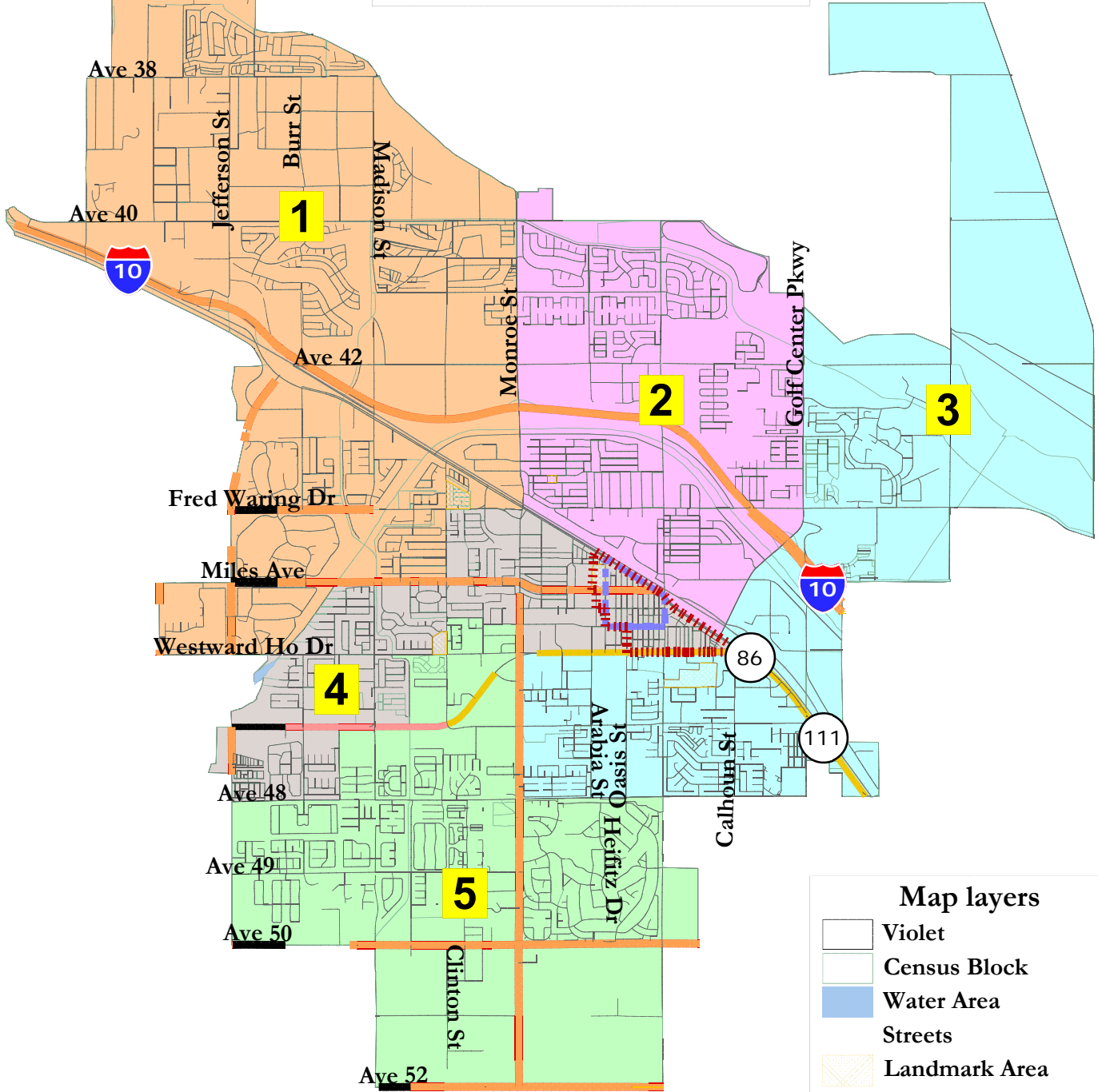


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City of Indio 2017 Districting

Violet

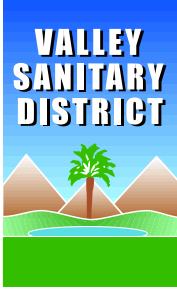
Proposed Election Sequence:
 2018 Elections: 2, 3 & 4
 2020 Elections: 1 & 5



- Map layers**
- Violet
 - Census Block
 - Water Area
 - Streets
 - Landmark Area
 - Pipeline/Power Line
 - Railroad
 - Early Indio
 - Mid 20th Century Ind

City of Indio - Violet Map

| District | | 1 | 2 | 3 | 4 | 5 | Total | |
|--|-----------------------------------|-------------|--------|--------|--------|--------|--------|-----|
| <u>Ideal</u> | Total Pop | 16,328 | 16,196 | 15,085 | 15,611 | 15,767 | 78,987 | |
| 15,797 | Deviation from ideal | 531 | 399 | -712 | -186 | -30 | 1,243 | |
| | % Deviation | 3.36% | 2.53% | -4.51% | -1.18% | -0.19% | 7.87% | |
| Total Pop | % Hisp | 46% | 74% | 81% | 79% | 62% | 68% | |
| | % NH White | 48% | 21% | 13% | 17% | 33% | 27% | |
| | % NH Black | 3% | 2% | 3% | 2% | 2% | 2% | |
| | % Asian-American | 3% | 3% | 2% | 2% | 2% | 2% | |
| Voting Age Pop | Total | 12,312 | 10,791 | 9,958 | 10,632 | 11,364 | 55,057 | |
| | % Hisp | 38% | 70% | 77% | 75% | 54% | 62% | |
| | % NH White | 56% | 24% | 17% | 20% | 40% | 33% | |
| | % NH Black | 3% | 2% | 3% | 2% | 2% | 2% | |
| | % Asian-American | 3% | 3% | 2% | 2% | 2% | 2% | |
| Citizen Voting Age Pop | Total | 11,709 | 8,598 | 7,370 | 8,539 | 9,525 | 45,741 | |
| | % Hisp | 33% | 65% | 71% | 72% | 51% | 56% | |
| | % NH White | 59% | 28% | 22% | 23% | 44% | 37% | |
| | % NH Black | 3% | 3% | 5% | 4% | 2% | 3% | |
| | % Asian/Pac.Isl. | 3% | 2% | 2% | 1% | 3% | 3% | |
| Voter Registration (Nov 2014) | Total | 7,886 | 6,003 | 4,390 | 5,570 | 5,831 | 29,680 | |
| | % Latino est. | 29% | 66% | 73% | 73% | 48% | 55% | |
| | % Asian-Surnamed | 1% | 1% | 1% | 1% | 1% | 1% | |
| | % Filipino-Surnamed | 1% | 1% | 2% | 1% | 1% | 1% | |
| | % Spanish-Surnamed | 26% | 59% | 66% | 66% | 43% | 49% | |
| | % NH White est. | 64% | 27% | 21% | 22% | 49% | 39% | |
| | % NH Black | 4% | 3% | 3% | 2% | 1% | 3% | |
| Voter Turnout (Nov 2014) | Total | 4,499 | 2,163 | 1,404 | 1,970 | 2,481 | 12,518 | |
| | % Latino | 17% | 56% | 66% | 65% | 35% | 40% | |
| | % Asian-Surnamed | 1% | 1% | 0% | 1% | 1% | 1% | |
| | % Filipino-Surnamed | 1% | 1% | 1% | 1% | 1% | 1% | |
| | % Spanish-Surnamed | 15% | 50% | 59% | 59% | 31% | 36% | |
| | % NH White est. | 76% | 36% | 29% | 30% | 62% | 54% | |
| Voter Turnout (Nov 2012) | Total | 5,562 | 3,631 | 2,145 | 3,197 | 3,946 | 18,481 | |
| | % Latino | 22% | 56% | 72% | 64% | 40% | 45% | |
| | % Asian-Surnamed | 1% | 1% | 1% | 1% | 1% | 1% | |
| | % Filipino-Surnamed | 1% | 1% | 1% | 1% | 1% | 1% | |
| | % Spanish-Surnamed | 19% | 50% | 65% | 58% | 36% | 41% | |
| | % NH White est. | 69% | 37% | 22% | 31% | 57% | 48% | |
| ACS Pop. Est. | Total | 18,809 | 16,147 | 15,172 | 17,383 | 16,211 | 83,722 | |
| | Age | age0-19 | 28% | 35% | 31% | 33% | 29% | 31% |
| | | age20-60 | 41% | 51% | 54% | 52% | 50% | 49% |
| | | age60plus | 30% | 14% | 14% | 15% | 21% | 19% |
| | Immigration | immigrants | 22% | 24% | 36% | 32% | 27% | 28% |
| | | naturalized | 37% | 40% | 33% | 32% | 32% | 34% |
| Language spoken at home | english | 57% | 43% | 30% | 35% | 47% | 43% | |
| | spanish | 39% | 53% | 67% | 63% | 51% | 54% | |
| | asian-lang | 1% | 1% | 2% | 1% | 1% | 1% | |
| | other lang | 3% | 2% | 1% | 1% | 1% | 2% | |
| Language Fluency | Speaks Eng. "Less than Very Well" | 15% | 24% | 33% | 29% | 22% | 24% | |
| Education (among those age 25+) | hs-grad | 58% | 55% | 53% | 56% | 63% | 57% | |
| | bachelor | 15% | 11% | 7% | 7% | 9% | 10% | |
| | graduatedegree | 9% | 4% | 3% | 4% | 7% | 6% | |
| Child in Household | child-under18 | 28% | 42% | 42% | 38% | 33% | 36% | |
| Work (percent of pop age 16+) | employed | 48% | 58% | 54% | 58% | 53% | 54% | |
| | Commute on Public Transit | 0% | 0% | 3% | 2% | 1% | 1% | |
| Household Income | income 0-25k | 21% | 20% | 25% | 29% | 26% | 24% | |
| | income 25-50k | 22% | 22% | 35% | 28% | 24% | 26% | |
| | income 50-75k | 20% | 21% | 20% | 17% | 20% | 20% | |
| | income 75-200k | 32% | 36% | 20% | 24% | 26% | 28% | |
| | income 200k-plus | 5% | 2% | 1% | 2% | 3% | 3% | |
| Housing Stats | single family | 96% | 93% | 71% | 72% | 72% | 82% | |
| | multi-family | 4% | 7% | 29% | 28% | 28% | 18% | |
| | vacant | 19% | 10% | 18% | 12% | 24% | 17% | |
| | occupied | 81% | 90% | 82% | 88% | 76% | 83% | |
| | rented | 24% | 31% | 45% | 47% | 41% | 37% | |
| | owned | 76% | 69% | 55% | 53% | 59% | 63% | |
| Total and Voting Age population data from the 2010 Decennial Census. | | | | | | | | |
| Surname-based Voter Registration and Turnout data from the California Statewide Database. | | | | | | | | |
| Latino voter registration and turnout data are Spanish-surname counts adjusted using Census Population Department undercount estimates. NH White and NH Black registration and turnout counts estimated by NDC. Citizen Voting Age Pop., Age, Immigration, and other demographics from the 2011-2015 American Community Survey and Special Tabulation 5-year data. | | | | | | | | |



Valley Sanitary District
Board of Directors Meeting
October 8, 2019

TO: Board of Directors
THROUGH: Beverli A. Marshall, General Manager
SUBJECT: **Adopt the Second Monday of October as Indigenous Peoples’ Day as an Officially Recognized Valley Sanitary District Holiday**

| | | |
|--|--|---|
| <input checked="" type="checkbox"/> Board Action | <input type="checkbox"/> New Budget Approval | <input type="checkbox"/> Contract Award |
| <input type="checkbox"/> Board Information | <input type="checkbox"/> Existing FY Approved Budget | <input type="checkbox"/> Closed Session |

Executive Summary

The purpose of this report is for the Board to discuss adding the holiday.

Fiscal Impact

The fiscal impact is nominal.

Background

Indigenous Peoples' Day is a holiday that celebrates the history and contributions of the indigenous peoples of North America. It is observed on the second Monday of October, thus coinciding with Columbus Day, a United States federal holiday commemorating the arrival of Christopher Columbus in the Americas in 1492.

Columbus Day holiday is increasingly controversial due to the catastrophic impact of the arrival of European settlers on Native Americans. Consequently, several states do not recognize the holiday, and others celebrate it as Indigenous Peoples' Day as a counter-celebration.

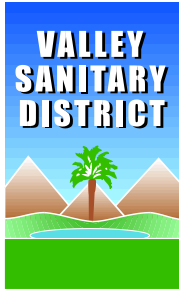
VSD observes 10 holidays compared to 11 observed by other comparable agencies in the area. In addition to the observed holidays, other comparable agencies in the area provide an average of two floating holidays, which VSD does not offer. By adding this one additional holiday, VSD is competitive with other agencies in the area with regards to this employee benefit. If approved, the holiday will be observed on Monday, October 14, 2019. The District’s website will be updated to reflect this office closure.

Recommendation

Staff recommends that the Board of Directors adopt the second Monday of October as Indigenous Peoples’ Day as an officially recognized Valley Sanitary District Holiday.

Attachments:

None



Valley Sanitary District
Board of Directors Meeting
October 8, 2019

TO: Board of Directors

THROUGH: Beverli A. Marshall, General Manager

SUBJECT: Authorize the General Manager to Execute a Contract with Engineering Solutions Services, Inc. for As-Needed Grant Assistance Support Services in an Amount Not to Exceed \$50,000 for Fiscal Year 2019/20

| | | |
|--|---|---|
| <input checked="" type="checkbox"/> Board Action | <input checked="" type="checkbox"/> New Budget Approval | <input type="checkbox"/> Contract Award |
| <input type="checkbox"/> Board Information | <input type="checkbox"/> Existing FY Approved Budget | <input type="checkbox"/> Closed Session |

Executive Summary

The purpose of this report is for the Board to discuss contracting with Engineering Solutions Services, Inc. for grant assistance support services.

Fiscal Impact

The fiscal impact is not to exceed \$50,000. If grant applications are successful, part of the cost might be reimbursed by the grants.

Background

Valley Sanitary District has several projects identified in its 20-year Capital Improvement Plan that may qualify for grants, loans, or other funding opportunities. Most of these opportunities have lengthy and time-consuming application processes as well as requiring technical information on the best method for being successful in applying for the limited funds. VSD staff does not have the experience with these grants and funding agencies that outside consultants can provide.

Engineering Solutions Services, Inc. (ESS) has had significant success assisting Coachella Valley water and wastewater agencies in applying for grants, loans, and special funding opportunities. They have professional and technical experts that have significant experience with the non-profit, state, and other agencies providing these opportunities and high returns on the applications (Attachment B).

Staff asked ESS to provide a quote for as-needed grant assistance to work with VSD on projects that it thinks best suit the available funding opportunities (Attachment A). The cost of the application preparation assistance can be, in many cases, charged back to the grants or loans, thus be cost neutral to VSD.

Recommendation

Staff recommends that the Board of Directors authorize the General Manager to execute a contract with Engineering Solutions Services for as-needed grant assistance support services in an amount not to exceed \$50,000 for Fiscal Year 2019/20.

Attachments:

Attachment A: As-Needed Grant Assistance Proposal by Engineering Solutions Services, Inc.

Attachment B: Engineering Solutions Services, Inc. Information Brochure

Proposal to provide



As-Needed Grant Assistance Support Services

September 17, 2019

Submitted by:



Engineering Solutions Services Inc.
23232 Peralta Drive, Suite 112
Laguna Hills, CA 92653
(949) 797-6055



September 17, 2019

Beverli Marshall
General Manager
45500 Van Buren Street
Indio, CA 92201

Re: Grant Assistance Support Services for Valley Sanitary District (VSD)

Dear Beverli,

Engineering Solutions Services Inc. (ESS) welcomes the opportunity to submit this proposal to provide as-needed grant writing and support services for the Valley Sanitary District (VSD). Our goal is to bring in the maximum available grant funding for the District. Having secured over \$300 million in less than seven years by ESS, we bring an unmatched experience and project team to identify and assist VSD with their strategic planning and application processes to ensure an expedited and successful funding award.

What sets ESS apart, is that we are not just a grant writing company but former municipal managers with technical and funding expertise that has gained deep rooted relationships with funding agencies. As such, we are aware of upcoming funding and have been achieving highest awards of funding by strategizing timely submittal of our applications on behalf of our clients.

As it is demonstrated in our proposal, we have a proven track record in successful award of grants for various water and sewer projects and we would like to utilize our expertise to gain the funding for the Valley Sanitary District.

ESS is comprised of former agency managers and engineers responsible for water, wastewater, and sewer enterprises that can offer their expertise to successfully obtain funding for VSD and support with administration of the projects if needed. We have established relationships with funding agencies including but not limited to:

- State Water Resources Control Board Division of Financial Assistance
- US Bureau of Reclamation
- California Department of Water Resources
- FEMA/Cal Office of Emergency Service Pre-Disaster Mitigation and Hazard Mitigation Planning
- Metropolitan Water District of Southern California
- US Department of Commerce – Economic Development Administration
- US Environmental Protection Agency



We will leverage our knowledge to identify grants, work with VSD staff to secure those grants, and finally administer the project and funding to meet the grant requirements. Effective, full-circle strategies like this are key to obtaining the largest possible grant award funding for VSD's projects.

There are several funding opportunities that focus on disadvantaged communities that VSD can take advantage of for funding its various water and sewer projects. We are prepared to assist your staff with the applications as needed and directed by staff. My project team and I look forward to working with you and the District's staff to develop successful grant application packages.

Sincerely,

A handwritten signature in black ink that reads "S. Shoja". The signature is written in a cursive style.

Sudi Shoja, PE, F.ASCE
Principal

Engineering Solutions Services – Background

Engineering Solutions Services (ESS) was founded by Sudi Shoja, PE, a former City Engineer who has more than 29 years of experience in managing CIP and Water and Sewer programs of over \$100 million. She founded ESS in 2012 with the goal of assisting local entities in achieving their goals in funding and compliance, program management, quality assurance/quality control, and project delivery. She leverages her successful experience with transforming the agencies where she worked from losing funding to securing the maximum grant funding possible, meeting the various funding agency requirements, and serving as examples for successful audit processes. As a result, she has earned a reputation that gained us our impressive repeat client list in a short timeframe. Included below are a few examples:

- **ESS has secured over \$35 million in funding from BOR, & SWRCB in the first six months of 2019 for its clients**
- **Received approval from WIFIA for over \$50million for two projects in 2018**
- **Prepared successful cogeneration project application for \$8 million in funding**
- **The SRF application package for \$103 million to SWRCB was approved in record time and with no comments**
- **Restructured a grant application for energy efficiency that resulted in more than \$5.1 million of grant funding & \$32 million in SRF funding for the City of Palm Springs**
- **Developed a funding plan for the City of Santa Ana that identified more than \$25 million in grant funding in water, recycled water, and sewer projects**
- **Created a funding strategy for the City of Hemet that resulted in \$6 million in savings and more than \$15 million in funding**
- **Identified more than \$20 million in water quality grants for two agencies**
- **Successfully awarded Proposition 84 grants in two cycles**
- **Successfully awarded \$39.2 million in GHG reduction funding since 2016**
- **Bureau of Reclamation ranked ESS prepared grant application for a well project as one of the highest**
- **ESS arranged for a funding fair attended by SWRCB, FEMA & County representatives**

ESS is comprised of **former agency personnel** who are thoroughly familiar with the intricate details of various funding requirements and excel at strategic planning for clients to maximize the potential for securing grants, successful management for meeting the requirements, obtaining proper authorization and reimbursements

We have secured over \$300 million for various agencies in the past seven years.



Our Clients

Served as prime or sub-consultant

South Coast Water District

SOCWA

Long Beach Water District

Port of Long Beach

LA Metro

SBCTA

OCTA

Coachella Valley Water District

San Bernardino Municipal Water Dept

City of Santa Ana

City of Laguna Beach

City of Palm Springs

County of Orange

City of San Marcos

Los Angeles Metro

City of Lake Forest

City of Laguna Woods

City of Villa Park

City of Laguna Niguel

City of Irvine

City of Tustin

City of Newport Beach

City of Redondo Beach

CA Earthquake Authority

City of Hemet

City of Perris

City of Banning

City of Richmond

and positive audit process of the projects. ESS is certified as a Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE) with 12 employees at its office in Laguna Hills.

Engineering Solution Services fully understands the inner workings of the regional and municipal government process. Comprised of former government engineering and traffic managers, we have been confronted with many of the same design, budget, schedule and project-delivery challenges that face our client governments.

This understanding allows our people **to think like public agencies** and address the challenges they are facing with proactive, well-planned, cost-efficient, and innovative solutions tailored to your needs. We approach every project strategically and scale our resources to fit the agency and scope of work.

ESS specializes in various funding resources, such as: CA Department of Water Resources Control Board for Green Project Reserve (GPR) and State Revolving Funds (SRF), US Bureau of Reclamation, Proposition 1B, Water Infrastructure Finance & Innovation Act (WIFIA), Proposition 68, Proposition 84, FEMA related grants, Community Development Block Grant (CDBG), Commerce-Economic Development Administration, funding for brownfields and remedial services, environmental Bicycle Transportation Account (BTA), Safe Route to Schools, Transit and Intercity Rail Capital Program (TIRCP), Transportation Infrastructure Finance & Innovation Act (TIFIA), FTA New Start, Railroad Safety Infrastructure Improvement (FRA-RSII), Positive Train Control (PTC), Cap and Trade, Transportation community and System Preservation (TCSP), Highway Safety Improvement Program (HSIP), High Priority Projects (HPP), local tax measures, TIGER Grants, and numerous other grants

Our services include: **Fund Strategy Development, Grant Writing, & Fund Compliance**



We are committed to being accountable and sharing ownership of the product and service. We believe that successful projects are a result of a well-managed and motivated team. Our team members possess a proven ability to establish and implement best practices, maintain continuity and flexibility, and deliver timely responses. We offer accessibility to a network of experts to address unique needs.

We believe in doing the job right the first time. Our commitment to providing excellent customer service has gained us repeated clients and contracts. We understand the challenges and requirements of municipal governments since many of our staff have held senior and executive management positions with California cities, including Public Works Directors, City Engineers, Capital Project Managers, and Construction Managers. This background and experience is important because document preparation will require a high level of interaction with the state project managers.

ESS is the right team to provide the consulting services for identifying and securing grants, finalizing agreements and monitoring funding compliance. We work as your partner, incorporating grant funding conversations in the process of each project as early as possible in order to maximize the potential for planning grant funding as well as implementation grand funding. Proprietary tools, such as our Work Plan Structure (WPS), in conjunction with our team's extensive experience and relationships with funding agencies, make this process easy.

We strive to *exceed*
expectations, not just
meet them

Our Core Business is Funding

Experience

The following highlights grants we have applied and/or managed in the last seven years:

| Agency | Projects | Funding Mechanism | Value |
|---|---|-------------------------|----------------------|
| South Coast Water District | Sewer Tunnel Rehabilitation Replacement Project | SWRCB | \$103 million |
| City of Palm Springs | Treatment Plant. SCADA, energy upgrades, Storm Water, Cogeneration | Various Funding Sources | \$37 million |
| City of Vista | 14 projects for Sewer Upgrade | State Water Resources | \$27 million |
| City of Vista | Five Sewer Rehabilitation Project | State Water Resources | \$33 million |
| Long Beach Water Department | Four projects for AMI, Sewer, Water Treatment | BOR, SWRCB | \$13 million |
| Coachella Valley Water Department | Four projects for Pilot Study and Stormwater | BOR, FEMA, WIFIA | \$64 million |
| City of Laguna Beach | Sludge Export, Facility Upgrade Sewer Collection System | Various sources | \$10 million |
| City of Santa Ana | Automated Metering, Water and Sewer, and Water project | Various sources | \$34 million |
| City of Downey | Recycling Water Expansion | Various sources | \$7 million |
| City of Redwood City | Recycling Water and Advanced Metering | Various sources | \$7 million |
| City of Hemet | Storm Water, Advanced Metering, Five-year Water Projects, Water and Sewer Master Plan, Sewer Rehabilitation | Various sources | \$28 million |
| City of San Fernando | Seismic Retrofit of Water Tank | FEMA | \$5 million |
| San Bernardino Municipal Water District | Seismic Upgrade | FEMA | \$28 million |
| City of Vista | Stormwater Grant Applications- two cycles | Proposition 84 | \$2 million |
| Total Secured or in Process | | | \$400 million |



THIS IS WHAT OUR CLIENTS SAY ABOUT US:

ESS really wants to help our City. Very organized and follow up is incredible. If you work with Sudi you will see that she makes every effort to be a huge support and not a burden. She takes care of her clients and you can tell she is passionate about what she does. ESS works to collect the information themselves instead of asking you for it and are very responsive when we have questions. ESS would be an asset to you.

Kris Jensen, Public Works Director, City of Hemet

You couldn't pick anyone better to help you get and find grant funding. A great resource that won't leave you hanging once the grant comes in and would guide you through the process and be happy to answer any of your questions after the fact.

Doug Erdman, Principal Civil Engineer, City of Lake Forest

She has been very responsive and has tried to keep all staff on track by checking in and urging us to keep the ball and direct contact with the project managers with the Green Project Reserve. They are really on top moving. From a customer service prospective ESS has been great, and their services are pretty affordable. ESS has a good relationship of the timeline and has been helping to keep us all motivated.

Erik Brown, Novato Sanitary District

Sudi with ESS is an expert and is extremely knowledgeable on what pieces of the process will need to be put where, and in what order. Carefully orchestrated.

Betty Burnett, General Manager, SOCWA

If you want to get grant funding, ESS is the expert and involved in the "grant community" and has been extremely successful.

Larry Pierce, Public Works Director (former), City of Vista

We had a wish list of the things we wanted to accomplish and ESS found the funding which matched our goals most. ESS made it clear what we could actually apply for. ESS knows all of the ins and outs of the application process. The rules change all of the time, and ESS is quite knowledgeable. ESS is also very thorough in their follow through. Finding ESS has been a big plus for the City. ESS was highly recommended to us.

Rick Moreno, Facility Manager, City of San Bernardino

Wastewater Treatment Facility Upgrade, City of Palm Springs, Palm Springs, CA

Responsibilities for the City of Palm Springs began with preparation of SRF loan applications for the **\$29 million** Wastewater Treatment Plant Upgrade & **8 million** for a cogeneration project. We arranged for a meeting with the SRF management in Sacramento and provided a presentation that assured adding this project to the priority list. During the complex process for this project, we were able to provide continuous coordination with three state SRF project managers and obtain approvals for every phase. This project was completed in March 2017.



In the process, ESS identified project elements that qualified for additional grants, resulting in successful award of more than **\$5.1 million** in grants the City did not expect. We prepared Green Project Reserve grant funding application and exhibits for the following:

- Variable Frequency Drive
- High Efficiency Motors
- SCADA System Upgrade
- LED lighting
- Combined Heat and Power Cogeneration Project
- Site Improvement

ESS is now preparing the project reporting, and processing reimbursements on behalf of the City.

Grant Compliance Services, Wastewater Treatment Facility Upgrade, City of Palm Springs, Palm Springs, CA



ESS was selected to provide grant compliance monitoring services to meet all the requirements of the EPA and CA State Water Resources Control Board. ESS provides SRF & GPR compliance to meet all the requirements and process all the reimbursements on behalf of the City.

ESS successfully completed the audit process and has been responsible for successful receipts of all reimbursements and project close out documents.

As-Needed Grant Writing Support Services, City of Santa Ana Utility Department, Santa Ana CA

ESS was selected in to provide needs assessment, grant identification, grant writing and compliance services for the Water and Sewer services Departments. ESS started by reviewing the City's CIP and unfunded projects and developed a funding plan by identifying grants.

To date, ESS then prepared successful applications for Bureau of Reclamation, Proposition 1, Ground Water Grant, Green Project Reserve and State Revolving Funds for the following projects:



- \$750,000 for wellhead treatment from BOR
- \$300,000 for AMI from BOR
- \$5 million for lift station rehabilitation
- \$75,000 for Water Recycling Master Plan
- \$10.5 million for Multi-Phase Sewer Collection System Improvements

The following grants are pending award:

- \$10 million for Automated Meter Infrastructure Improvements,
- \$10.5 million for Multi-Phase Water Distribution System Improvements,
- \$2.5 million for Septic-to-Sewer project
- Proposition 68 applications

The above work has been completed since January 2018 and ESS has been responsible for 100% of the work noted here.

Grant Writing Services, Long Beach Water Department, Long Beach, CA



ESS has been providing grant assistance services that started with a needs assessment and review of the agency's CIP projects and unfunded projects. ESS presented a funding strategy of funding opportunities matching the projects that was approved by the Department. ESS has prepared the following successful projects for the agency:

- \$1,500,000 for AMI from BOR in 2019 (total cost of \$4.9 million)
- \$750,000 for construction of West Coast Basin Well from BOR (total cost of \$2.9 million)
- \$2.6 million for Green Project Reserve/SRF from SWRCB (total cost of \$5.2 million)

ESS has been working with LBWD since December 2017 and ESS has been responsible for 100% of the work noted here.

Multiple Projects, South Coast Water District, Orange County, CA

- **Tunnel Stabilization and Pipeline Replacement Project- SRF Loan**

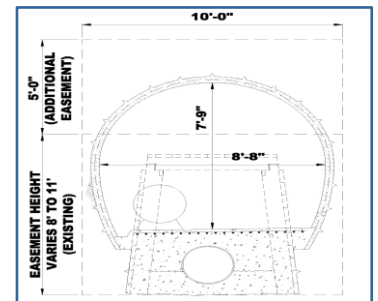


ESS served as Project Manager to develop a funding strategy for the \$103M construction project for the District and update the project documents to meet federally funded grants requirements. This included facilitation of meetings with funding agencies; preparation of presentations; review of existing engineering, environmental and regulatory compliance documents; and preparation of final documents in addition to conferring with various state and federal agencies on behalf of

the District.

We facilitated a meeting with the CA State Water Resources Control Board Management. **It is noteworthy that there were no comments from the funding agencies on any of the submittals and the project received approval in record time.**

- **WaterSMART** – Bureau of Reclamation Grant for Water Recycling project for \$10 million Recycled Water Distribution Bottleneck Upsizing Project
- **Grant Assistance Services** – Research of available grants with applicability to District’s projects.



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Port of Long Beach (POLB) Grant Advisory & Preparation

ESS has been serving POLB by providing a needs assessment and grant research services for various departments.

ESS is currently working with POLB on applicable funding for AQMD/Coastal Conservancy and multiple other agencies, seeking grant funding to implement its Climate Adaptation and Coastal Resiliency Plan, including shoreline protection measures. Through grant research and assistance, ESS is currently looking into details of funding for the Long Beach Municipal Stormwater Treatment facility (LB-Must) which is a joint project with the Long Beach Water Department.



Capital Improvement Project Analysis, South Orange County Wastewater Authority (SOCWA), San Juan Capistrano, CA



Working directly with SOCWA General Manger, Engineering Director, and General Manager, Project involved review of financial documents and Capital Improvement Program information and provided establishing platforms where Authority could apply for SRF and other funding opportunities on behalf of its members.

Grant Writing Support Services, City of Hemet Water and Sewer Departments, Hemet, CA

ESS provided a review of City's proposed CIP and unfunded list of projects and provided a comprehensive strategy to obtain grant funding for the City serving its disadvantaged community.

City's approval of the recommended strategy resulted in ESS pursuing five grant application packages and pursuit of low interest loan in lieu of bonds that equated to savings of **more than \$13.5 million**.



ESS is currently pursuing grants for water and sewer master plans, automated water metering system, and upgrades for water distribution and sewer collection systems.

Approach

VSD has completed the Water Reclamation Facility (WRF) Final Master Plan that sets the road map for pursuing the projects listed in the coming years. It is our understanding that Phase 2A has been completed. VSD is now looking for grant funding and low interest loans (SWRCB is offering 1.3% loan on projects on the fundable list) to augment its financial portfolio and to fund the remaining phases.

ESS is well positioned to provide VSD with the current and upcoming grant opportunities, provide a funding strategy for projects and prepare winning applications for submittal.

The ESS team believes in a full-circle approach to obtaining grant funding. The three main components of this process are outlined in the three steps and discussed further below: Develop Funding Strategy, Assist the District in Applying for Grants, and Grant Compliance Monitoring and other tasks.

1. Develop Funding Strategy:

- Conduct funding research to identify grant resources including but not limited to federal, state, and local agencies, as well as private foundations that fund municipalities for opportunities that match a specific VSD's project or program, the VSD's strategic goals, legislative platform, or policy objectives;
- Research grant opportunities identified by VSD;
- On a regular basis provide VSD with a summary of potential funding opportunities relevant to its needs;

2. Assist VSD in Applying for Grants:

- Advise VSD regarding opportunities in order to determine when and how to proceed in a pursuit;
- Compose grant proposals on behalf of VSD, including the preparation of a budget, coordinate preparation of exhibits such as graphs and schematics, and compile demographic data and other necessary items for grant applications;
- Develop timelines and checklists to ensure timely grant completion and submission;
- Review grants written by VSD staff and provide comments or assist to complete and submit the grant as needed

3. Grant Compliance:

- Assist VSD with the preparation and submittal of post-award reports that are required under the terms of the grant

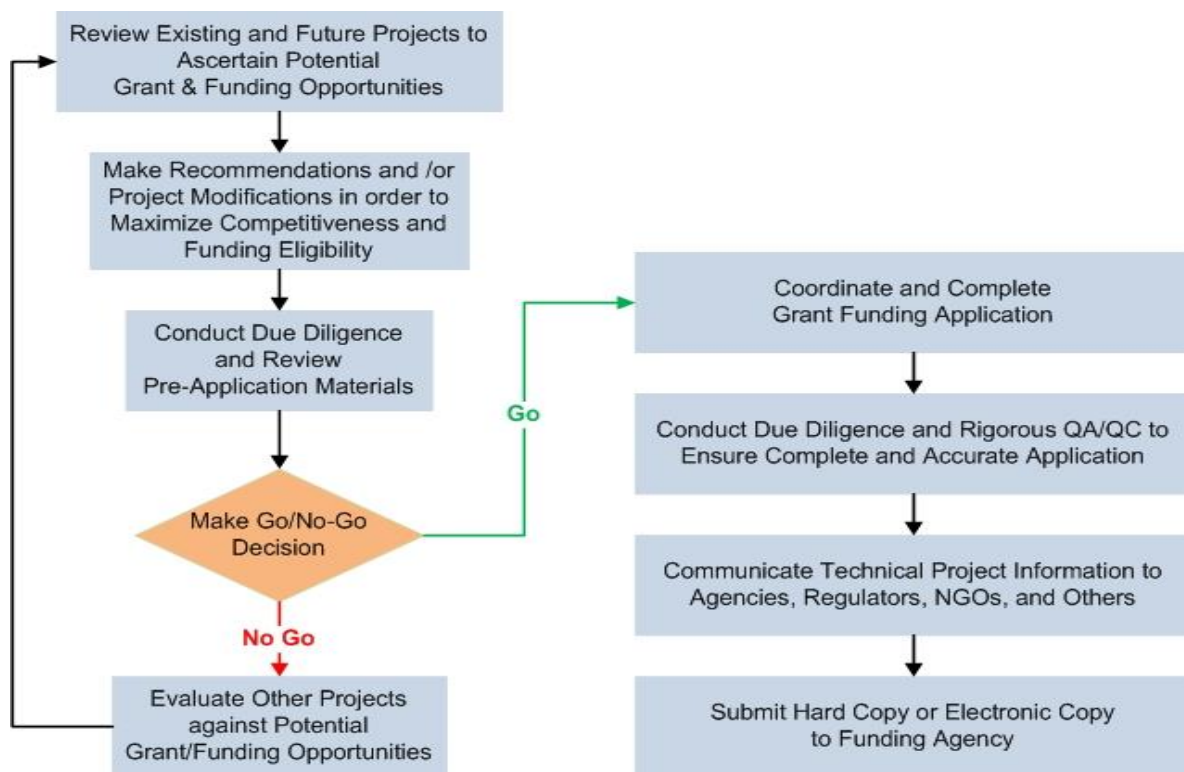
Our goal is to bring in the highest possible amount of funding for VSD. To achieve this goal, ESS brings its extensive experience and a highly qualified team to work closely with VSD to mold the VSD's project components, to maximize eligibility and ranking under various funding programs.

Our accomplished technical staff and grant writers regularly prepare successful grant applications for local, state, federal, and private/foundational programs, from the initial development of a program to completion of a grant application. We have the unique ability to distill and convey complex project information into funding agencies' specific formats for grant applications. Our experience in coordinating, managing, and

writing different types of applications has led to successful procurement of funding for many clients. Similarly, our experience with grant administration has enabled us to see another side of grant acquisition, wherein we can capitalize on this knowledge.

Develop Funding Strategy

The complex and elaborate process of obtaining funding can delay an agency’s ability to act. Our comprehensive knowledge of the funding process helps us conceptualize and develop an appropriate action plan, thereby maximizing success. We will identify eligibility requirements, likely availability of funding, terms, conditions, and other key parameters. Our step-by-step process to a successful application is shown in the following flow chart:



Established Relationship with Funding Agencies

We understand that truly **successful grant funding consists of two-thirds planning and one-third writing**. With that in mind, we pride ourselves in our close relationships with funding agencies. Those relationships, plus appropriate and meticulous planning, allow us to obtain key information about the successful awarding of grant funds. One of the tactics used to ensure this strategy's success is to identify opportunities for in-person meetings with the funding agency when we are creating the WPS. We know this approach provides results from experience.

- ESS was aware of the additional grant funding available to the State Water Resources Board and as such has aligned the submittal of its applications such that they will be well ahead of the competition and receive the due attention.
- When applying for stormwater grants for Coachella Valley Water District, ESS arranged a conference call to discuss the two top-priority projects for the District and receive key input from grant funding project managers.

We have established relationships with the following agencies:

- State Water Resources Control Board
- Bureau of Reclamation
- AQMD
- EPA – Various Departments
- California Department of Water Resources
- Department of Housing and Urban Development
- FEMA/CalOES Office of Emergency Services Pre-Disaster
- FEMA/CalOES Office of Emergency Services Hazard Mitigation Grant Program

We will contact these agencies to discuss the VSD specific project conditions and obtain concurrence before moving forward to preparation of the grant application.


- ESS arranged a funding fair that was attended by SWRCB, FEMA/CalOES and County representatives
- Sudi has been working with SWRCB since 2009 and has a great working relationship with all the project managers that allows her to learn about State preferences on an ongoing basis.
- ESS uses its relationship with Bureau of Reclamation offices in Riverside and Denver, to assist its clients with all their awarded and pending project.
- ESS facilitated a meeting with SWRCB for the City of Palm Springs project that resulted in discussion of opportunities and constraints, assignment of project manager and approval of the two SRF loans for a total of \$37 million.

As the following areas of the Approach section outline, our work style and the strategies we create position our clients for maximum funding awards while ensuring the efficiency of grant writing and related services. Our clients agree, and that earns the firm repeat business.

Identification of Funding Sources

ESS team members keep up to date with the available Federal- and State-level funding alternatives for many types of grants, including water and sewer projects, and energy savings for municipal facility updates. We attend various funding fairs, participate in providing input to guidelines for funding opportunities, and are subscribed to receive notices on available funding.

We will then use our extensive experience to match VSD’s projects with the available funding options.

|  Local, State, and Federal Funding Opportunities | | | | | | | |
|---|--------------------------------------|------------------------------|---|---|---------------------------|---|---|
| PROGRAM | Total Allocation | Funding Available this Round | Purpose | Eligible Projects | Status | Anticipated Timeline | Notes |
| SWRCB Stormwater Implementation Grants/ Proposition 1 | \$200M | \$80M | Multi-benefit SW projects that respond to climate change, and are included in an adopted SW Resource Plan or IRWMP facilities | Implementation projects including but not limited to: Green infrastructure; SW capture; SW treatment | Round 1 SOLICITATION OPEN | TBD 2018: Round 2 solicitations for implementation grants | Planning grant solicitation closed in March (\$20M) additional round of \$100 M for implementation grants anticipated |
| DWR Water Use Efficiency: CA Revolving Fund/ Prop 1 | \$10M | \$10M | Sustainable funding source for urban water use efficiency projects. | Dish/clothes washer upgrades; Water-saving plumbing fixtures; Hot-water recirculating pumps; Leak detection, irrigation upgrades; | Solicitation opening soon | Summer 2017: Loan applications due | \$5M for loans to local agencies for water efficiency upgrades; \$5M for loans to customers for onsite projects or leak repairs |
| DWR IRWM: Implementation Grants/ Prop 1 | \$418M statewide \$98M for LA Region | TBD | Projects and programs that support IRWM. | Water reuse and recycling; Water conservation; Surface storage/GW recharge; Water conveyance; Watershed restoration/protection | In development | TBD: Round 1 solicitation for implementation grants | • Public comment period ended April 8, 2016 |

Identification of Appropriate Projects for Funding

Sudi Shoja will arrange a kick-off meeting with the VSD staff and the ESS team. Working with the VSD Project Manager, we will discuss current status of projects, available funding, established priorities, project planning and design status, management preferences and regulatory requirements. With our thorough knowledge of available and historical funding opportunities and our technical expertise in managing similar programs, we will be able to recommend a strategy and ranking of projects for funding pursuits if requested.

- Review of City of Hemet’s bond options and developing a funding strategy resulted in savings of more than **\$6 million** for the City. Plus, analysis of the City’s CIP program and the unfunded list of projects identified more than **\$7.5 million** in grant funding and **\$20 million** in SRF funding.
- Working with the County of Orange, we recommended a strategy that resulted in submittal of an additional successful HSIP grant application, almost doubling the amount of funding County was expecting to receive for street improvement project.
- Review of City of Downey CIP program and unfunded list of projects resulted in identification of two grant programs for the City for **up to \$8 million** in funding.

Targeted Approach for Maximum Scoring on Evaluation Criteria

The first step for our targeted approach is to develop a full understanding of the project elements, project milestones, and available project reports. We will also study the previously awarded projects from the funding agency and learn about the key points that may be overlooked for their simplicity. In developing the grant application packages, we will identify the primary and secondary evaluation criteria to help highlight the project strengths. We will work closely with VSD’s Project Manager to identify the potential gaps, analyze alternatives, and recommend resolutions to minimize their impact. With this approach, ESS has added value for our clients:

- ESS recommended re-strategizing of funding pursuits for four projects for the City of Santa Ana resulted in identification of additional \$10 million in grants.
- Review of City of Commerce projects resulted in changing the scope of work and a successful award of more than \$1 million.
- Detailed evaluation of the grants has enabled us to advise the agencies if the project is not competitive and therefore resulted in cost savings by not preparing grant applications.

Quantitative Analysis and Technical Reports

Depending on the grant requirements, ESS will work with the VSD Project Manager to collect the pertinent technical data then use our highly experienced team members to complete the technical write-up sections of the grants. As needed, and upon VSD’s direction, we will be prepared to perform additional technical research and analysis or supplement the effort. Our engineers have been directly responsible for implementation of water and sewer projects and will use their expertise to articulate the technical information of the grants.

WRITING-TO-WIN Approach

Using a targeted approach to analyze objectives and match goals to opportunities provides us with the details we need for our writing-to-win approach. Once a funding strategy is in place, the next challenge is to create a winning application. ESS brings its proven track record in creating an application package that will stand out among dozens, highlighting the project’s merit in full compliance with the instructions and limitations.

The \$103 million grant application on behalf of South Coast Water District did not receive any comments and was reviewed in record time

This approach uses a high degree of expertise and creativity. ESS understands that impactful illustrations transform well-researched information into powerful persuasion. ESS has used the clarity of graphics and schematic drawings to show grant evaluators the client agency’s expertise and vision:

- For a Department of Water Resources grant, ESS provided pictorial highlights of the project’s energy-efficiency benefits — the goals of the grant.
- For a cap-and-trade grant to reduce GHG emissions, ESS replaced the executive summary with graphics highlighting projects matching the grant focus. This resulted in an award of more than \$9 million.
- For another project, ESS used an AQMD pollution map as a base and plotted all of the appropriate, completed energy-efficiency projects.

Budget Analysis and Construction Planning

The ESS team will assist VSD in identifying qualifying information to meet grant requirements for budgeting and construction planning. Budgets demonstrate project flexibility and budget scalability to make the grant applications more attractive **and create opportunities to apply again even after a successful application’s award**. Some areas of focus will include:

Qualifying matching fund

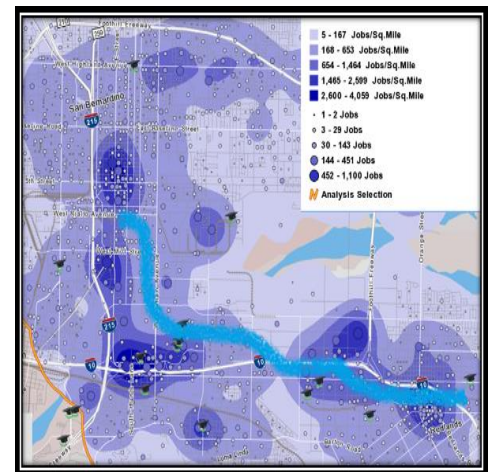
Implementation requirements for allocation purposes

Budget scalability

Scheduling details

Disadvantaged Communities (DAC)

Many funding opportunities allocate a certain percentage of the funding to projects benefiting disadvantaged communities and therefore, it is imperative that the need and applicability is effectively demonstrated. For example, WaterSMART grants funded by Bureau of Reclamation have historically allocated about 75% of the funding to benefit the disadvantaged communities. Claiming benefits to disadvantaged communities requires documentation and substantiation of meaningful benefits, as well as explanation of the methodology used for assuring accomplishment of those benefits. This identification must be based on geographic, socioeconomic, public health, and environmental hazard criteria (Health and Safety Code Section 37911). CalEPA has identified disadvantaged communities for investment based on a tool called CalEnviroScreen 2.0.



***Demonstration of low-earning jobs
in cities of San Bernardino and
Redlands for a successful award of***

ESS is acutely familiar with researching geographic equity and the degree to which disadvantaged communities would benefit from a project. A successful application for TIRCP for the San Bernardino County Transportation Authority demonstrated 41 DACs in the area. ESS will work with staff to identify projects in the disadvantaged communities and highlighting the benefits to win the award of funding for VSD if applicable.

Support Letters

Often, this aspect of a grant application is given only cursory attention and proves to be invaluable. At ESS, these potentially undervalued areas are key endorsements that ESS crafts in close cooperation with clients. ESS will draft focus points of the grants so that support letters send strong, targeted messages.

Grant Application Review and Approval Process

For every project, **ESS will assign a QA/QC manager**, which is an important factor of a successful grant application. We will use our internal grant checklist to ensure the application package is ready for submittal. This process will follow the grant guidelines and an internal guide for editorial quality. In our experience, we will need two reviews from VSD Project Managers.

To ensure grant applications are completed efficiently, ESS will arrange a meeting with the VSD Project Manager to review an early draft of the grant application package, to answer questions, finalize budget, and schedule concerns and to further align the project with the grant goals and objectives. All final grant application packages will be submitted to VSD for review and approval prior to submittal to the granting agency.

Technology

Many agencies have online grant submittal and management tools, including the DWR Bond Management System (BMS), California DWR’s Grants Review and Tracking System (GRanTS), the State Water Resources Control Board’s Financial Assistance Application Submittal Tool (FAAST), and the federal government’s www.grants.gov website and the online submittal platforms other grants as needed.

| BMS | FAAST | GRanTS | Grants.go |
|-----|-------|--------|-----------|
| ✓ | ✓ | ✓ | ✓ |

Compliance Monitoring and Other As-needed Tasks

Furthermore, our team routinely performs grant management and administration services for funding by various agencies. Specific activities associated with this type of work includes quarterly progress reporting and invoicing, coordination with diverse project proponents and projects, management of grant deliverables and submittals, as well as coordination with project proponents and the funding agency.

ESS is extensively knowledgeable in monitoring and compliance with federal and state funding agency requirements reporting, reimbursement applications, the American Iron and Steel provision, as well as labor compliance and EPA-originated grants, such as those managed by the California State Water Resources Board, for a successful audit process.

- ESS has been providing compliance-monitoring and reimbursement services for City of Palm Springs' \$29 million wastewater treatment project. In a recent audit by the State Water Resources Board, ESS received full approval of its processes.
- ESS has been providing successful compliance on a \$280 million San Bernardino County Transportation Authority project that consists of more than 15 different funding sources.

As former agency personnel, ESS team members are fully prepared to support the Project Managers with all required analysis, reports, resolutions and expenditure reports, and staff reports on an as-needed basis and following the VSD's preferred style. In addition, ESS will be able to assist the Project Managers with the requirements needed for advertising and the specification sections of the project to be in full compliance with the funding agency's requirements.

Level of Effort

ESS proposes to engage in identification of potential grants and development of grant application packages on an as-needed basis for a contract amount of \$100,000.

Grant Identification Phase: For this phase, we propose to review the project documents to learn about project details, schedules and constraints, research the available funding, communicate with the funding agencies and provide a detailed matrix of available funding and recommendation for pursuit of specific funding for VSD's consideration.

While each project has unique features, we believe that the grant research will be applicable to all the projects on VSD's priority list. We normally perform this phase of the work based on hourly rates that are noted below.

Grant Application Development Phase: Based on the determined funding pursuits, ESS will provide an estimate for each type of funding for approval.

Grant Monitoring and Compliance Phase: Our work in this phase will vary based on the type of grant. We normally perform this phase of the work based on hourly rates that are noted below.

| FEE Schedule | |
|----------------------------|--------------------|
| Discipline | Hourly Rate |
| Principal/Technical Expert | \$150 |
| Project Manager | \$135 |
| Grant Writer | \$120 |
| Grant Support lead | \$ 95 |
| Labor Compliance | \$ 75 |
| Clerical | \$ 52 |
| | |
| Reimbursable | Cost |
| Reproduction | Cost |
| Courier Services | Cost |
| Transportation | 0.57 per mile |
| Sub - Consultant Services | Cost + 15% |
| Travel Time | Actual time |
| | |

Key Staff Assignments

The ESS staff assigned to this project have successfully completed numerous Bureau of Reclamation, State Water Control Board funding including GPR and Clean Water SRF loans. Our track record, past agency personnel background, and familiarity with the latest CA Water Resources' and other funding agency procedures and issues provides VSD with the expertise necessary to complete its funding applications in most efficient manner and and establish appropriate procedures for future project loans.

- **Sudi Shoja, PE, Principal and Project Manager** has extensive experience in securing and managing various federal, state and local funds and bond measures, including: Bureau of Reclamation, Green Project Reserve (GPR), State Revolving Funds (SRF), Highway Safety Improvement Program (HSIP), FTA New Start, Highway Rail Crossing Safety Account (HRCSA), Community Development Block Grant (CDBG), Bicycle Transportation Account (BTA), High Priority Projects (HPP), Transportation community and System Preservation (TCSP), Recycled Asphalt Concrete (RAC), Local Tax Measures and various Propositions, FEMA, Cal-EMA, and numerous other grants from regional agencies.
- **Mir Fattahi, PE, Project Manager** has more than 35 years of extensive experience in all facets of water and sewer engineering, planning, design and project management; budgeting, scheduling, contract administration, change-order management, claim analyses and mitigation; constructability review, development and implementation of QA/QC procedures. He has led and managed major CIP infrastructure projects in water/wastewater including recycled water for various agencies in Southern California.
- **Debbie Murphy, Project Engineer** has worked for various water and sewer departments of agencies in Southern California for over 25 years. She has extensive experience across the spectrum of water- and sewer-related projects from planning, design construction, operations and regulatory requirements. Grant applications prepared by Debbie have been receiving maximum funding.
- **Chenxia Li, Project Manager** has been serving as a Grants Manager for several agencies, managing projects and complex federal and state funding. She is a great candidate to review and update the Grant Policy and Procedure Manuals that are required by various funding agencies.
- **Cassandra Hom, EIT, Project Engineer** has been working on numerous successful grant application packages including Bureau of Reclamation and WIFIA and Water Resources Control Board.
- **Kate Bernstein** is the Grant Support Lead for ESS who provides quality control services for all grant's requirements and submittals processes. She has extensive experience in dealing with and meeting the various funding agency requirements.
- **Nima Varasteh**, will assist with research, compiling and submitting the various application pieces. He has been instrumental in applications for the Cities of Palm Springs and Santa Ana.



**As-Needed Grant Assistance Services
Valley Sanitary District**

As demonstrated herein, ESS has sufficient depth of resources to ensure a timely completion of the funding applications. Using highly experienced staff, ESS provides the expertise and knowledge needed to complete these services in the most cost-effective way.

Sudi Shoja, PE, F. ASCE, Principal, Project Manager

Sudi brings more than 29 years of municipal engineering, grant- and fund-management experience. She has an established relationship and extensive experience in securing and managing various federal, state and local funds, gaining successful audits in all cases. She has been responsible for budgeting, scheduling, and implementing annual funds of more than \$100 million for various agencies. Moreover, she has also held numerous leadership positions and served on committees with regional and local government, professional associations and philanthropic organizations to advance regional planning, transportation, policy issues, and local interests.

Some of the transportation grants she has successfully secured include: Local tax measures, FTA New Start, Highway Rail Crossing Safety Account (HRCSA), Highway Safety Improvement Program (HSIP), Bicycle Transportation Account (BTA), High Priority Projects (HPP), Transportation community and System Preservation (TCSP), Recycled Asphalt Concrete (RAC), State Revolving Funds, and funding for environmental and numerous other grants from regional agencies. She is also very familiar with FEMA and Cal-EMA grants and reimbursement procedures.

Following are some of our success stories since 2012:

- A \$103 million application package for SRF was approved in record time and received no revisions.
- GPR application for City of Palm Springs was not part of the original contract, secured approval to pursue and brought in more than \$5.5 million in grant funding.
- The 2012 HSIP Grant written for County of Orange was considered one of the best by FHWA and posted on the agency's website.
- Analysis of project information for the County of Orange in 2013 resulted in submittal of two applications and additional \$1.2 million in HSIP funds.

Sudi has a lot of experience in many different grants including FEMA, Cal-EMA and those through private foundations and organizations. Moreover, she has also held numerous leadership positions with professional associations and philanthropic organizations.

Education

MS, Civil Engineering, Purdue, 1983

Registration Professional Engineer CA, 42958, 1986

Years of Experience: 29

2012 – Present Engineering Solutions Services

2004 – 2012, City of Vista – City Engineer

2001 – 2004 City of Huntington Beach

1990 – 2001, City of Santa Ana

1986 – 1990, DECOMA Industries

1984 – 1986, J.A. Martin & Associates

Memberships

American Public Works Association (APWA)

American Society of Civil Engineers (ASCE)

Woman in Transportation-International (WTS)

Construction Management Association of America (CMAA)

California Emergency Services Association (CESA)

Relevant Work Experience

As-Needed Grant Writing and Fund Compliance Services, Water and Sewer Department, City of Santa Ana, CA

Responsible for providing grant writing services including identifying opportunities, preparation of successful application for BOR WEEG grant in 2018, and compliance-management services for the City. ESS has assisted in preparation of four applications for overall sewer and water system improvements and two specific projects on behalf of the City. Sudi coordinates and submits all necessary applications and documentation and advises City on best practices.

Grant Writing Services, Multiple Projects, City of Hemet Water Department, Hemet, CA

Responsible for providing a grant strategy and preparation of grant application packages for more than \$7.5 million for Automated Water Metering and water distribution system upgrades on behalf of the City.

Grant Writing Services, Multiple Projects, City of Redwood City Water Department, CA

Responsible for providing a grant strategy and preparation of grant application packages for more than \$8 million for Automated Water Metering and water-distribution system upgrades on behalf of the City.

WaterSMART, Grant Assistance and Clean Water Act State Revolving Fund Loan, South Coast Water District (SCWD), Laguna Beach, CA

Project manager responsible for securing the \$103 million Clean Water Act state revolving fund loan from the State Water Resources Control Board. Coordinated with the state to obtain approval in record time. Prepared loan application materials for the District's Tunnel Rehabilitation and Replacement Project and assisted staff with all the required resolutions and documents. Provided on-call grant tracking and grant-writing support for the District.

Wastewater Treatment Plant and Cogeneration Projects, Green Project Reserve Grant (GPR) and SRF Loan, City of Palm Springs, CA

Responsible for coordination with state project managers to obtain approval for securing the \$37 million loan and the potential principal forgiveness through GPR application on behalf of the City. Client was able to add reimbursement for previously expended design and equipment purchases to the project application.

SRF Compliance Monitoring, Wastewater Treatment Plant Upgrade, Palm Springs, CA

Responsible for finalizing SRF and GPR agreements, filing for reimbursements and monitoring for Buy America, DBE, and prevailing wage requirements as per state and federal EPA regulations.

Three Application Packages for Sewer Improvement Projects, SRF and GPR Loan/Grant, City of Laguna Beach, CA

Responsible for filing applications and coordination with state project managers to obtain approval for securing \$16 million loan and the Green Project Reserve grant funding. Citywide projects involved upgrade of sludge force main, treatment facility upgrade, and sewer-line rehabilitation.

Fund Analysis and Grant Assistance, South Orange County Wastewater Authority (SOCWA), San Juan



Capistrano, CA

Responsible for review of overall engineering projects and financing alternatives and establish funding mechanism to apply for SRF funding on behalf of interested member agencies.

Sewer Master Plan, State Revolving Funds (SRF), City of Vista, Vista, CA

As project manager responsible for a \$100 million sewer program, identified successful funding strategies including rate increase and securing of \$57 million of low-interest and no-cost funding sources that resulted in an expedited renovation of a dilapidated sewer system. Responsible for all agreements and negotiations with state, local, and private entities, studies, reports and presentations to officials and community forums, phasing and adherence to fund regulations for bidding and reimbursements.

Energy Efficiency Grant Application, Novato Sanitary District, CA

Responsible for preparation of an application package for the District's cogeneration project and demonstration of the proposed energy efficiency processes to obtain over \$4 million in grant funding.

FEMA Grant Application Package, Cities of San Bernardino, Wildomar, Newport Beach, and Laguna Niguel, CA

Project Manager to submit necessary documentation for nine various grant applications for a total grant amount of \$23 million for competitive state and federal level funding.

Mir T. Fattahi, PE, F. ASCE, Project Manager, Senior Civil Engineer /Technical Writer

Mr. Fattahi has more than 35 years of extensive experience in all facets of water and sewer engineering, planning, design and project management; budgeting, scheduling, contract administration, change-order management, claim analyses and mitigation; constructability review, development and implementation of QA/QC procedures. He has led and managed major CIP infrastructure projects in water/wastewater including recycled water for various agencies in Southern California.

Mir Fattahi also brings extensive experience in securing and managing grants of more than \$20 million from the Bureau of Reclamation and the CA State Water Resources Board.

Mr. Fattahi is highly knowledgeable on water- and sewer-related funding pursuits and has successfully secured and managed funding and project implementation on behalf of various agencies. He is experienced in directing projects and staff in fast-paced, results-oriented environments. He is an articulate communicator able to elicit outstanding performance from a diverse array of professionals. And he is highly successful in developing synergistic relationships to bring projects to completion on time and under budget, strong leadership, organization, and communication skills.

His past experience includes roles such as Consultant and Principal-in-Charge, managing capital projects with various public agencies, working directly with the public and private clients.

Education

*MS, Civil Engineering, CA
State University Long
Beach, CA , 1992*

Registration Registered
Professional Engineer in CA
(#C59465)

Certified Cross Connection Control
Specialist – USC

General Engineering Contractor
License “A” (#969080)

Principals of Supervision

Supervisor’s Academy

Cross Connection Control –
Certified by USC Foundation

Traffic Control, Trenching and
Excavation

Years of Experience: 35

Relevant Work Experience

State and Federal Grant Management, Project Manager Inland Empire Utilities Agency (IEUA), Chino, CA

Involved in acquisition and management of a more than \$20 million Grant Funding Program from the Bureau of Reclamation for recycled water, including all the pipelines, pump stations and reservoirs. Also managed the program and the funding for installation of the required laterals for the seven-member agency.

Various Agencies, Program and Fund Manager, CA State Water Resources Control Board (CSWRCB), CA

Responsible for successful award, management of various SRF loan and other grant projects from SWRCB for multiple agencies including cities of Hemet and Laguna Beach.

Water and Sewer Design, Principal-in-Charge, Pomona, CA

Principal-in-Charge of designing 3,000 feet of water and sewer line planning and design for the City of Pomona.

Recycled Water Program, Project Manager/Engineer, Simi Valley, CA

Project manager/Engineer in charge of preparation of plans and specifications for recycled water

connections, preparation of engineer's report, cross connection testing and report, site supervisor training and issuance of certificate for Ventura County Waterworks District No. 8, City of Simi Valley.

Recycled Water Program, Project Manager/Engineer, Fontana, CA

Project Manager/Engineer in charge of preparation of plans and specifications for local lateral connections, preparation of engineer's report, cross connection testing and report, site supervisor training and issuance of certificate for Fontana Water Company.

Water and Reclaimed Water Systems, Project Manager, Aliso Viejo, CA

Project manager responsible for design and preparation of construction plans, specifications, and cost estimates for Oak Grove water and reclaimed water systems. The project consists of approximately 10,000 lf of water and reclaimed water pipelines designed for the Moulton Niguel Water District to be constructed in the community of Aliso Viejo. PVC and Ductile Iron Pipes were specified for this project.

Water, Sewer and Reclaimed Water Transmission Pipeline, Project Manager, Laguna Hills, CA

Project manager in charge of the design, contract document preparation and construction management of the Wood Canyon water, sewer, and reclaimed water facilities for the Moulton Niguel Water District. The project consisted of three miles of water transmission pipeline, two miles of reclaimed water transmission pipeline, and three miles of gravity and force main sewers. Several pipe materials, including CML&C steel pipe, DIP and PVC pipe were specified based upon design requirements.

Recycled Water Program, IEUA, Project Manager, Chino, CA

Program manager of the Agency's Recycled Water Program. Under his direction the recycled water use increased from 15,000 AFY to 37,000 AFY in 2.5 years with a target of 50,000 AFY by the end of 2012. The program involved site investigation, preparation of retrofit plans, preparation of engineering report, cross-connection testing, up to completion and energizing recycled water to the site. Users of recycled water include farmers, schools, industrial entities, golf courses, parks, and commercial office landscape areas. He worked directly with agency's seven-member staff in planning, design, construction and expansion of the regional recycled water system. He also participated in the review of some of the member agencies recycled water and wastewater master planning efforts.

Capital Improvement Projects, IEUA, Project Manager, Chino, CA

Agency's lead in regional recycled water project coordination with all member agencies and responsible for management of over \$75 million in design and construction projects including more than 30 miles of 20- to 48-inch pipelines, pump stations, and reservoirs.

Sewer System Planning and Design, Project Manager, Irvine, CA

Project manager responsible for preparation of Project Design Report (PDR) and final plans, specifications and cost estimates for approximately 4000 linear feet of 12-inch-diameter trunk sewer in Barranca Parkway. The project also included the alignment study and the design for a 10-inch gravity sewer to replace two existing sewage lift stations and a 6-inch force main within the Orange Tree Development.

Engineering Solutions Services



Water- and Sewer-Related Grant Assistance Services

Quality. Integrity. Reliability.

Engineering Solutions Services (ESS) believes that successful projects are a result of a well-managed and motivated team that is committed to being accountable and sharing ownership of the product and service. Our staff members possess a proven ability to implement best practices, provide technical solutions, maintain continuity and flexibility, and deliver timely responses. ESS ensures you have a network of experts to address your unique needs. We look at the big picture so you can move your projects forward with confidence.

CPUC WBE 14060178, CUCP 41274-LA Metro SBE, DBE- SANDAG Bench

23232 Peralta Drive, Suite 112 Laguna Hills, CA 92653
P: (949) 797-6055 E: sudi@engineeringsolutionservices.net

Background

Engineering Solutions Services (ESS) was founded by Sudi Shoja, PE, a former City Engineer who has more than 29 years of experience in managing CIP and Water and Sewer programs of over \$100 million. She founded ESS in 2012 with the goal of assisting local entities in achieving their goals in funding and compliance, program management, quality assurance/quality control, and project delivery. She leverages her successful experience with transforming the agencies where she worked from losing funding to securing the maximum grant funding possible, meeting the various funding agency requirements, and serving as examples for successful audit processes. As a result, she has earned a reputation that gained us our impressive repeat client list in a short timeframe. Included below are a few examples:

- **ESS has secured over \$35 million in funding from BOR, & SWRCB in the first six months of 2019 for its clients**
- **Received approval from WIFIA for over \$50million for two projects in 2018**
- **Prepared successful cogeneration project application for \$8 million in funding**
- **The fund-request package for \$103 million to SWRCB was approved in record time and with no comments**
- **Restructured a grant application for energy efficiency that resulted in more than \$5.1 million of grant funding for City of Palm Springs**
- **Developed a funding plan for the City of Santa Ana that identified more than \$25 million in grant funding in water, recycled water, and sewer projects**
- **Created a funding strategy for the City of Hemet that resulted in \$6 million in savings and more than \$15 million in funding**
- **Identified more than \$20 million in water quality grants for two agencies**
- **Successfully awarded Proposition 84 grants in two cycles**
- **Successfully awarded \$39.2 million in GHG reduction funding since 2016**
- **Bureau of Reclamation ranked ESS prepared grant application for a well project as one of the highest**

ESS is comprised of **former agency personnel** who are thoroughly familiar with the intricate details of various funding requirements and excel at strategic planning for clients to maximize the potential for securing grants, successful management for meeting the requirements, obtaining proper authorization and reimbursements and positive audit process of the projects. ESS is certified as a

We have secured over \$300 million for various agencies in the past seven years.

Our Clients

Served as prime or sub-consultant

South Coast Water District

SOCWA

Long Beach Water District

Port of Long Beach

LA Metro

SBCTA

OCTA

Coachella Valley Water District

San Bernardino Municipal Water Dept

City of Santa Ana

City of Laguna Beach

City of Palm Springs

County of Orange

City of San Marcos

Los Angeles Metro

City of Lake Forest

City of Laguna Woods

City of Villa Park

City of Laguna Niguel

City of Irvine

City of Tustin

City of Newport Beach

City of Redondo Beach

CA Earthquake Authority

City of Hemet

City of Perris

City of Banning

City of Richmond

Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE) with 12 employees at its office in Laguna Hills.

Engineering Solution Services fully understands the inner workings of the regional and municipal government process. Comprised of former government engineering and traffic managers, we have been confronted with many of the same design, budget, schedule and project-delivery challenges that face our client governments.

This understanding allows our people **to think like public agencies** and address the challenges they are facing with proactive, well-planned, cost-efficient, and innovative solutions tailored to your needs. We approach every project strategically and scale our resources to fit the agency and scope of work.

ESS specializes in various funding resources, such as: CA Department of Water Resources Control Board for Green Project Reserve (GPR) and State Revolving Funds (SRF), US Bureau of Reclamation, Proposition 1B, Water Infrastructure Finance & Innovation Act (WIFIA), Proposition 68, Proposition 84, FEMA related grants, Community Development Block Grant (CDBG), Commerce-Economic Development Administration, funding for brownfields and remedial services, environmental Bicycle Transportation Account (BTA), Safe Route to Schools, Transit and Intercity Rail Capital Program (TIRCP), Transportation Infrastructure Finance & Innovation Act (TIFIA), FTA New Start, Railroad Safety Infrastructure Improvement (FRA-RSII), Positive Train Control (PTC), Cap and Trade, Transportation community and System Preservation (TCSP), Highway Safety Improvement Program (HSIP), High Priority Projects (HPP), local tax measures, TIGER Grants, and numerous other grants

Grant Assistance — Water- and Sewer-Related Services

Our services include: **Fund Strategy Development, Grant Writing, & Fund Compliance**

We are committed to being accountable and sharing ownership of the product and service.

We believe that successful projects are a result of a well-managed and motivated team. Our team members possess a proven ability to establish and implement best practices, maintain continuity and flexibility, and deliver timely responses. We offer accessibility to a network of experts to address unique needs.

We believe in doing the job right the first time. Our commitment to providing excellent customer service has gained us repeated clients and contracts. We understand the challenges and requirements of municipal governments since many of our staff have held senior and executive management positions with California cities, including Public Works Directors, City Engineers, Capital Project Managers, and Construction Managers. This background and experience is important because document preparation will require a high level of interaction with the state project managers.

ESS is the right team to provide the consulting services for identifying and securing grants, finalizing agreements and monitoring funding compliance. We work as your partner, incorporating grant funding conversations in the process of each project as early as possible in order to maximize the potential for planning grant funding as well as implementation grand funding. Proprietary tools, such as our Work Plan Structure (WPS), in conjunction with our team's extensive experience and relationships with funding agencies, make this process easy.

*We strive to **exceed**
expectations, not just
meet them*

Our Core Business is Funding

Experience

The following highlights grants we have applied and/or managed in the last seven years:

| Agency | Projects | Funding Mechanism | Value |
|---|---|-------------------------|----------------------|
| South Coast Water District | Sewer Tunnel Rehabilitation Replacement Project | SWRCB | \$103 million |
| City of Palm Springs | Treatment Plant. SCADA, energy upgrades, Storm Water, Cogeneration | Various Funding Sources | \$37 million |
| City of Vista | 14 projects for Sewer Upgrade | State Water Resources | \$27 million |
| City of Vista | Five Sewer Rehabilitation Project | State Water Resources | \$33 million |
| Long Beach Water Department | Four projects for AMI, Sewer, Water Treatment | BOR, SWRCB | \$12 million |
| Coachella Valley Water Department | Four projects for Pilot Study and Stormwater | BOR, FEMA, WIFIA | \$64 million |
| City of Laguna Beach | Sludge Export, Facility Upgrade Sewer Collection System | Various sources | \$10 million |
| City of Santa Ana | Automated Metering, Water and Sewer, and Water project | Various sources | \$30 million |
| City of Downey | Recycling Water Expansion | Various sources | \$7 million |
| City of Redwood City | Recycling Water and Advanced Metering | Various sources | \$7 million |
| City of Hemet | Storm Water, Advanced Metering, Five-year Water Projects, Water and Sewer Master Plan, Sewer Rehabilitation | Various sources | \$28 million |
| City of San Fernando | Seismic Retrofit of Water Tank | FEMA | \$5 million |
| San Bernardino Municipal Water District | Seismic Upgrade | FEMA | \$7 million |
| City of Vista | Stormwater Grant Applications- two cycles | Proposition 84 | \$2 million |
| Total Secured or in Process | | | \$374 million |

THIS IS WHAT OUR CLIENTS SAY ABOUT US:

ESS really wants to help our City. Very organized and follow up is incredible. If you work with Sudi you will see that she makes every effort to be a huge support and not a burden. She takes care of her clients and you can tell she is passionate about what she does. ESS works to collect the information themselves instead of asking you for it and are very responsive when we have questions. ESS would be an asset to you.

Kris Jensen, Public Works Director, City of Hemet

You couldn't pick anyone better to help you get and find grant funding. A great resource that won't leave you hanging once the grant comes in and would guide you through the process and be happy to answer any of your questions after the fact.

Doug Erdman, Principal Civil Engineer, City of Lake Forest

She has been very responsive and has tried to keep all staff on track by checking in and urging us to keep the ball and direct contact with the project managers with the Green Project Reserve. They are really on top moving. From a customer service prospective ESS has been great, and their services are pretty affordable. ESS has a good relationship of the timeline and has been helping to keep us all motivated.

Erik Brown, Novato Sanitary District

Sudi with ESS is an expert and is extremely knowledgeable on what pieces of the process will need to be put where, and in what order. Carefully orchestrated.

Betty Burnett, General Manager, SOCWA

If you want to get grant funding, ESS is the expert and involved in the "grant community" and has been extremely successful.

Larry Pierce, Public Works Director (former), City of Vista

We had a wish list of the things we wanted to accomplish and ESS found the funding which matched our goals most. ESS made it clear what we could actually apply for. ESS knows all of the ins and outs of the application process. The rules change all of the time, and ESS is quite knowledgeable. ESS is also very thorough in their follow through. Finding ESS has been a big plus for the City. ESS was highly recommended to us.

Rick Moreno, Facility Manager, City of San Bernardino

Wastewater Treatment Facility Upgrade, City of Palm Springs, Palm Springs, CA

Responsibilities for the City of Palm Springs began with preparation of SRF loan applications for the **\$29 million** Wastewater Treatment Plant Upgrade & **8 million** for a cogeneration project. We arranged for a meeting with the SRF management in Sacramento and provided a presentation that assured adding this project to the priority list. During the complex process for this project, we were able to provide continuous coordination with three state SRF project managers and obtain approvals for every phase. This project was completed in March 2017.



In the process, ESS identified project elements that qualified for additional grants, resulting in successful award of more than **\$5.1 million** in grants the City did not expect. We prepared Green Project Reserve grant funding application and exhibits for the following:

- Variable Frequency Drive
- High Efficiency Motors
- SCADA System Upgrade
- LED lighting
- Combined Heat and Power Cogeneration Project
- Site Improvement

ESS is now preparing the project reporting, and processing reimbursements on behalf of the City.

Grant Compliance Services, Wastewater Treatment Facility Upgrade, City of Palm Springs, Palm Springs, CA



ESS was selected to provide grant compliance monitoring services to meet all the requirements of the EPA and CA State Water Resources Control Board. ESS provides SRF & GPR compliance to meet all the requirements and process all the reimbursements on behalf of the City.

ESS successfully completed an audit process and is currently responsible for all reimbursements and project close out documents.

As-Needed Grant Writing Support Services, City of Santa Ana Utility Department, Santa Ana CA

ESS was selected in to provide needs assessment, grant identification, grant writing and compliance services for the Water and Sewer services Departments. ESS started by reviewing the City's CIP and unfunded projects and developed a funding plan by identifying grants.



To date, ESS then prepared successful applications for Bureau of Reclamation, Proposition 1, Ground Water Grant, Green Project Reserve and State Revolving Funds for the following projects:

- \$750,000 for wellhead treatment from BOR
- \$300,000 for AMI from BOR
- \$5 million for lift station rehabilitation
- \$75,000 for Water Recycling Master Plan
- \$10.5 million for Multi-Phase Sewer Collection System Improvements

The following grants are pending award:

- \$10 million for Automated Meter Infrastructure Improvements,
- \$10.5 million for Multi-Phase Water Distribution System Improvements,
- \$2.5 million for Septic-to-Sewer project
- Proposition 68 applications

The above work has been completed since January 2018 and ESS has been responsible for 100% of the work noted here.

Grant Writing Services, Long Beach Water Department, Long Beach, CA

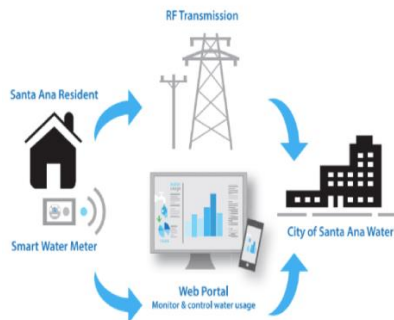


ESS has been providing grant assistance services that started with a needs assessment and review of the agency's CIP projects and unfunded projects. ESS presented a funding strategy of funding opportunities matching the projects that was approved by the Department. ESS has prepared the following successful projects for the agency:

- \$1,500,000 for AMI from BOR in 2019 (total cost of \$4.9 million)
- \$300,000 for construction of West Coast Basin Well from BOR (total cost of \$2.9 million)
- \$2.6 million for Green Project Reserve/SRF from SWRCB (total cost of \$5.2 million)

ESS has been working with LBWD since December 2017 and ESS has been responsible for 100% of the work noted here.

As-Needed Grant Writing Services, Coachella Valley Water District, Coachella Valley, CA



ESS has been providing funding strategy and grant writing services for various types of projects. In the past year, ESS has been able to provide the District with the following successful grant application packages:

- **Successful submittal of two FEMA applications for over \$13 million that were recommended by CalOES to FEMA for funding** (cost: \$9.6 million)
- **Successful submittal of AMI demonstration project to Bureau of Reclamation** (project cost: \$262,000)
- **Successful submittal of Letters of Interest for WIFIA funding for over \$50 million for two Projects** (project cost: \$99 million)

ESS has been working with CVWD since January 2018 and has been responsible for 100% of the work noted here.

Multiple Projects, South Coast Water District, Orange County, CA

- **Tunnel Stabilization and Pipeline Replacement Project- SRF Loan**

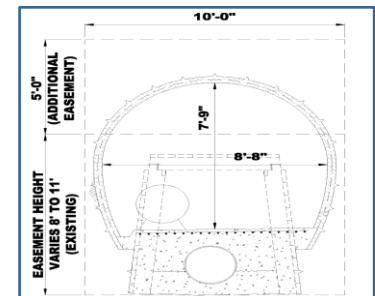


ESS served as Project Manager to develop a funding strategy for the \$103M construction project for the District and update the project documents to meet federally funded grants requirements. This included facilitation of meetings with funding agencies; preparation of presentations; review of existing engineering, environmental and regulatory compliance documents; and preparation of final documents in addition to

conferring with various state and federal agencies on behalf of the District.

We facilitated a meeting with the CA State Water Resources Control Board Management. **It is noteworthy that there were no comments from the funding agencies on any of the submittals and the project received approval in record time.**

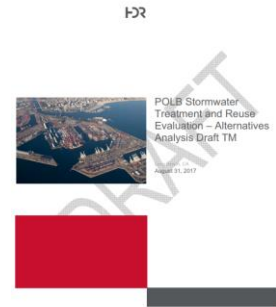
- **WaterSMART** – Bureau of Reclamation Grant for Water Recycling project for \$10 million Recycled Water Distribution Bottleneck Upsizing Project
- **Grant Assistance Services** – Research of available grants with applicability to District's projects.



Port of Long Beach (POLB) Grant Advisory & Preparation

ESS has been serving POLB by providing a needs assessment and grant research services for various departments.

ESS is currently working with POLB on applicable funding for AQMD/Coastal Conservancy and multiple other agencies, seeking grant funding to implement its Climate Adaptation and Coastal Resiliency Plan, including shoreline protection measures. Through grant research and assistance, ESS is currently looking into details of funding for the Long Beach Municipal Stormwater Treatment facility (LB-Must) which is a joint project with the Long Beach Water Department.



Capital Improvement Project Analysis, South Orange County Wastewater Authority (SOCWA), San Juan Capistrano, CA



Working directly with SOCWA General Manager, Engineering Director, and General Manager, Project involved review of financial documents and Capital Improvement Program information and provided establishing platforms where Authority could apply for SRF and other funding opportunities on behalf of its members.

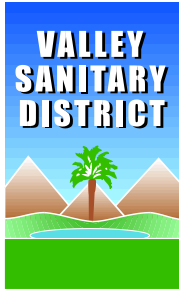
Grant Writing Support Services, City of Hemet Water and Sewer Departments, Hemet, CA

ESS provided a review of City's proposed CIP and unfunded list of projects and provided a comprehensive strategy to obtain grant funding for the City serving its disadvantaged community.

City's approval of the recommended strategy resulted in ESS pursuing five grant application packages and pursuit of low interest loan in lieu of bonds that equated to savings of **more than \$13.5 million**.



ESS is currently pursuing grants for water and sewer master plans, automated water metering system, and upgrades for water distribution and sewer collection systems.



**Valley Sanitary District
Board of Directors Meeting
October 8, 2019**

TO: Board of Directors

THROUGH: Beverli A. Marshall, General Manager

SUBJECT: **Request Permission to Allow Volunteer Apiary on Valley Sanitary District Property to Support Local Bee Population and Harvest “#2 Gold” Honey as an Environmental Demonstration Project**

| | | |
|--|--|---|
| <input checked="" type="checkbox"/> Board Action | <input type="checkbox"/> New Budget Approval | <input type="checkbox"/> Contract Award |
| <input type="checkbox"/> Board Information | <input type="checkbox"/> Existing FY Approved Budget | <input type="checkbox"/> Closed Session |

Executive Summary

The purpose of this report is for the Board to discuss providing permission to allow apiary (beekeeping) on VSD premises.

Fiscal Impact

There is no cost in allowing this volunteer program.

Background

Bee populations have been in decline for more than a decade, a stark reality few people seem to grasp. Bee populations around the world have and continue to suffer from colony collapse disorder (CCD). Bees are important to both residential and industrial agriculture. Many of the crops raised in Coachella Valley (citrus, carrots, broccoli, cauliflower, melons, grapes, and peppers) rely on pollinators for successful, healthy crops.

Urban beekeeping is not just another way to practice the beekeeping hobby. It is critically important to the survival of honeybees. Urban beekeeping is just as important as large-scale beekeeping operations in rural areas because it contributes to the efforts to increase bee populations. Urban bees tend to be more naturally robust due to a more varied diet, stronger immune system, and adaptability that all assist the hives in resisting CCD. Promoting, supporting, and educating about urban beekeeping is necessary to keep it an active part of the overall bee population solution.

VSD can help by allowing space on its treatment plant property for a volunteer apiary. The success of the program can lead to an educational opportunity for visitors to both the Coachella Valley Wild Bird Center as well as to the VSD facility. Honey (#2 Gold) produced by the bees will be part of educational presentations, not sold.

Recommendation

Staff recommends that the Board of Directors approve the request to use part of the VSD property for a volunteer apiary.

Attachments:

Attachment A: *Bees in the Neighborhood: Best Practices for Urban Beekeepers*, May 2018, University of California Berkeley



Bees in the Neighborhood: Best Practices for Urban Beekeepers

Pollination is an essential ecosystem service, and bees are critical to the rich diversity of fruits, vegetables, and nuts we eat. Close to 75% of all flowering plants on Earth rely to some degree on pollinators in order to set seed or fruit. Pollinators are required for producing 15 to 30% of the human food supply, and farmers throughout the world rely on managed honey bees to provide these services (Greenleaf and Kremen 2006). The value of the European honey bee, *Apis mellifera* L., to pollination services is estimated at \$217 billion globally and \$20 billion in the United States annually (Frankie et al. 2014). In California alone, about one-third of agricultural revenue comes from pollinator-dependent crops.

Declines in pollinator populations could have serious economic repercussions throughout the United States and the world, including rising food costs and potential crop failures (see Potts et al. 2016). Specifically, in the United States, the number of managed honey bee colonies has decreased by 50% since 1945 (vanEngelsdorp and Meixner 2010). This decline also highlights the danger of an overreliance on a single species, such as the European honey bee, for pollination services (see Garibaldi et al. 2013). Much research has been spearheaded in recent years to understand the contributions of other pollinators, such as native bees, to our food systems. Even the federal government published the *Pollinator Partnership Action Plan*, which outlines a plan to support struggling pollinator populations. The federal efforts aim to decrease honey bee colony losses to below 15% annually within 10 years and to restore seven million acres of pollinator habitat over 5 years across the United States through public-private partnerships (The White House, May, 2015; The White House, June 2016).

VIRGINIA Lj. BOLSHAKOVA, Director,
Out-of-School Programs, Indiana GEAR UP;
ELINA L. NIÑO, University of California
Cooperative Extension Assistant Specialist,
University of California, Davis

Ecosystem services such as crop pollination are important for ensuring food security for the growing world population (e.g., Daily 1997); understanding how to manage such resources is fundamental for supporting these efforts. In large-scale agricultural production, studies have documented the increased value in pollination services when native, nonmanaged bee populations are in close proximity (see Brittain et al. 2013; Frankie et al. 2002; Kim 2004; Kremen et al. 2004). However, currently, large-scale agriculture in the United States still largely depends on honey bees for crop pollination.

Honey bees obtain significant pollen and nectar of diverse nutritional value from many native plant species found in natural habitats (Kremen et al. 2002). Developed environments sometimes provide fewer resources than natural habitats and present unique challenges that should be addressed. Urbanization causes an irreversible change to the environment, leading to fragmented habitats in urban and suburban areas. Not enough is known about urbanization effects on the composition of insect communities, including beneficial insects such as bees, wasps, and other beneficial arthropods that are vital to sustaining healthy ecosystems. However, encouraging results from the Urban California Native Bee Survey (Frankie et al. 2014) demonstrate that providing floral square footage of pollinator-supportive plants throughout the foraging seasons can help sustain diverse bee populations across urban landscapes. The media coverage of the peril of pollinators has led to the general public wanting to help bees in particular. The public can have a great positive impact on pollinator health by providing plentiful nectar and pollen resources by planting a diversity of pollinator-supportive plants, rather than engaging in beekeeping, especially since we still do not fully understand how much pollinator-supportive landscape is needed to provide optimal resources for local bee populations.

Public awareness about pollinator importance and the growing interest in urban beekeeping (usually considered a subcategory of backyard beekeeping) has led many local and municipal governments across California to revisit ordinances to acknowledge and potentially facilitate this developing resurgence in the trade

and hobby. For example, in the last 10-12 years, membership in the Beekeepers' Guild of San Mateo County grew nearly tenfold, from 40 to a current level of about 400 members (N. Irvine, San Mateo Beekeeper Guild, pers. comm.). This has presented a unique need for developing guidelines for responsible beekeeping in urban and suburban areas with particular emphasis on neighbor relations and safety.

Further, urban beekeepers may play an important role in supporting honey bee health through early detection of pests and pathogens and by preventing their spread by adhering to proper best management practices. Urban and suburban beekeepers could also provide a link between the general public and commercial beekeepers by promoting the importance of pollinators in agricultural ecosystems and educating the public on how to help support pollinators, such as by planting pollinator-supportive plants. It is therefore essential that guidelines for best management practices be benchmarked to ensure good stewardship by beekeepers in urban and suburban areas.

COMPLIANCE WITH STATE AND LOCAL AUTHORITY

A beekeeper should comply with all applicable state, county, and city regulations. State laws, regulations, and more can be found at the California Department of Food and Agriculture's (CDFA) Pollinator Protection website, <https://www.cdfa.ca.gov/plant/pollinators/index.html>. Additional helpful information can be found at the California Department of Pesticide Regulations (CDPR) Pollinator Protection website, <http://www.cdpr.ca.gov/docs/enforce/pollinators/>.

For laws specific to your county, contact your county Agricultural Commissioner's office (see the CDFA website, <https://www.cdfa.ca.gov/exec/county/countymap/>) or your local University of California Cooperative Extension office (http://ucanr.edu/County_Offices/).

For city-specific laws, please check your city's ordinances or contact your city's offices.



Figure 1. The “Do You See a Honey Bee?” poster shows a diversity of color forms of *Apis mellifera*. Source: A. Jones

BASIC HONEY BEE BIOLOGY

The European honey bee is not native to the western hemisphere; their value for producing honey and wax led to their introduction by early European colonists (vanEngelsdorp and Meixner 2010). Honey bee workers are about $\frac{1}{2}$ to $\frac{5}{8}$ inch long, with an orange-to-yellowish-brown to almost black body color and black stripes on the abdomen (fig. 1). The legs, antennae, and eyes are black; the thorax, abdomen, and legs are densely covered with hairs. Pollen is often seen carried in a ball on their hind legs attached to special structures called pollen baskets (corbicula). Honey bees build their nests from wax produced by their wax glands, and they locate nests inside hollow trees and other types of protected cavities (e.g., walls). The males, or drones, are significantly larger than honey bee workers and have notably larger eyes that touch together at the top of the head. Queens mated with drones are typically the largest individuals in the hive, being both longer and wider than worker bees. The queen bee’s larger abdomen is noticeably more triangular and pointed than the abdomens of either workers or drones.

Queens mate only once in their lifetime with an average of 12 to 14 drones during a mating flight over a period of 1 or 2 days (Tarpy and Nielsen 2004; Tarpy et al. 2013). The queen lays eggs continuously for the rest of her life and never leaves the colony again unless there is a swarming or absconding event (Winston 1987). Queens are the only reproductive females that can lay fertilized (female) eggs. Eggs are laid in comb cells and, after hatching, the grublike larvae are fed by workers. Female larvae can become either workers or queens, depending on the needs of the colony. This outcome is regulated by worker-provisioned food: royal jelly is continuously fed to queen-destined larvae, and worker jelly is fed to worker-destined larvae (Kamakura 2011; Mao et al. 2015). In the absence of a queen, workers can start laying unfertilized (male, drone) eggs. The queen releases pheromones that affect a variety of behaviors and physiology of the workers in the colony (reviewed in Grozinger 2015). Interactions between the queen and the workers are complex and well worth investigating further.

GENERAL MAINTENANCE AND CONSIDERATIONS FOR HIVE MANAGEMENT

Hives

Colonies should be kept in hives with removable frames, such as Langstroth, top-bar, or Warre hives. The advantage of these hives is that honey bees build the comb into frames that can be moved and inspected with ease, allowing a beekeeper to better manage the colony by, for example, taking preventative measures against pests and diseases. It can also help the beekeeper determine whether the colony is low on food stores, which may suggest the need for additional feeding. For example, if larvae are floating on a large pool of brood food, this usually indicates sufficient food stores; if larvae appear dry and have very little brood food, this usually indicates insufficient food (particularly protein).

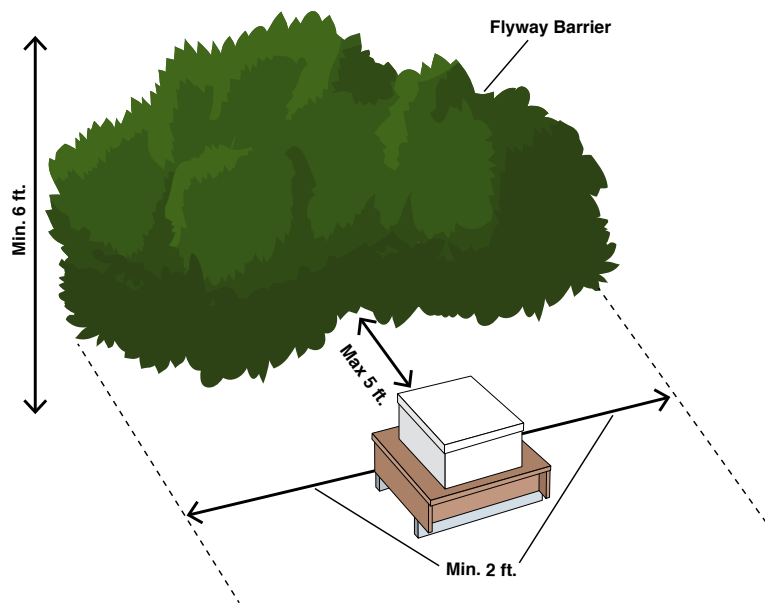
Hive Placement

Keep your hives on your own property; if the hives are kept elsewhere, you should have written permission from the property owner allowing you to keep bees in that location. When placed

on someone else's property, a sign giving contact information for the beekeeper must be posted according to California Food and Agriculture Code §§ 29040–29056 (see https://leginfo.ca.gov/faces/codes_displayText.xhtml?lawCode=FAC&division=13.&title=&part=&chapter=1.&article=4). Placement of hives is an important consideration for responsible beekeeping, especially in urban or suburban areas, where people live in very close proximity. To avoid unnecessary colony disturbance, hives should be placed in a quiet area of the lot. Alternatively, hives can be placed 8 feet above the ground (e.g., on rooftops). Hives are best placed as far away from neighboring properties as possible, as well as away from roads, sidewalks, trails, and other pedestrian rights-of-way. Hive entrances should face in a direction so that bees leaving the hive fly across your property. If necessary, you may redirect flight paths up and away from neighboring properties by using barriers such as hedges, shrubs, fabric, or fencing elevated in front of the hive entrance (fig. 2).

Hive placement and hive density is situational; lot size, proximity to human and other animal activity, water and food resources, and neighbor tolerance are just some factors to be considered. One of the primary limitations to keeping bees is the real or perceived interaction between bees and people who live in or use the surrounding area (see the sections “Bee Allergies” and “Bee Phobia,” below). To minimize this issue, limit the number of hives you keep to avoid becoming a nuisance and a possible hazard to your neighbors. Notifying neighbors that honey bee colonies will be placed nearby might be advisable and could work toward avoiding future misunderstandings. Cities and counties often specify allowable hive numbers in their ordinances (e.g., San Diego County, see <http://www.sandiegocounty.gov/content/dam/sdc/awm/docs/condensed%20Bee%20Ordinance%209-15-15.pdf> and Tehama county <http://co.tehama.ca.us/images/stories/agriculture/ApiaryOrdinance.pdf>), so before obtaining colonies, consult with your local authorities. While the number of hives can be temporarily increased in certain circumstances (e.g., during honey extraction, queen rearing/breeding, etc.), the number of hives should be restored to lower numbers as soon as the activity

Figure 2. An example of a flyway barrier in front of a colony, which forces the foragers to fly up, minimizing their access to neighboring yards.



is completed. Getting consent from all adjacent property owners and residents to increase hive numbers to an explicitly stated hive density could provide a guide to accommodating higher-density apiaries while keeping in mind that these numbers might have to be adjusted if bees prove to be a nuisance.

Provision of Water and Food

Ideally, hives should be placed in an area with a variety of floral resources that bloom throughout the foraging season and an adequate fresh water supply throughout the growing season. The amount of forage needed depends on many variables. A backyard garden crop may flourish due to a resident honey bee colony. Such a garden, however, is only a minimal share of the nectar and pollen required for supporting a colony. Further, not all nectar and pollen resources are equal because some blooming plant species, such as the California buckeye (*Aesculus californica*), have a toxic effect on honey bees (Mussen et al. 1987; Detzel and Wink 1993). To minimize toxic exposure to hives, move bees away from unsuitable forage or place pollen traps at the hive entrance. If pollen traps are employed, supplemental feeding might be necessary.

A report from London, UK, highlighted the need for adequate foraging areas to support urban pollinator needs (Alton and Ratnieks 2013). As a result, and instead of increasing the number of urban honey bee hives, London residents are planting species that support pollinators throughout the city. This project may increase honey yields for individual bee colonies and also to educate the public on sound beekeeping practices (e.g., limit the number of colonies in a given area to allow access to adequate forage).

Ensure that a clean water source is available for your bees *before* placing the hives. A water source should be available year round, particularly during severe drought. In very hot weather, bees use a large amount of water to maintain temperature and humidity within the hive. A summer colony requires at least 1 quart of water per day and even more when temperatures are extremely high (Flottum 2014). Bees prefer to obtain water at a sunny place with surface moisture, for example, wet sand or gravel, the edge of a birdbath, a soaker hose, etc. Considering the possibility for

mosquito-borne diseases, it is crucial to minimize water sources that may be suitable for mosquito reproduction; providing a very shallow water source (e.g., wet sand, soaker hose) is preferable. Establish water sources before placing the hives, as the bees will acclimate to their presence and be less likely to visit swimming pools, landscape water features, or animal water bowls that are often the cause of conflict with neighbors. Verify that bees are visiting appropriate water sources. If they are not, change the type or location of water sources and make other adjustments as needed.

If bees become a nuisance for the neighbors it might be necessary to temporarily relocate hives and return them after a period of at least 3 weeks (MAAREC 2016). Make sure to provide a new water source at both the old and new locations. Optimally, the bees should be moved at least 4 to 5 miles from the original location. Inquire with a local honey bee association for assistance because fellow beekeepers may provide temporary space. An up-to-date list of California beekeeper clubs and associations can be found at the U.C. Davis E.L. Niño Bee Lab website, <http://elninobeelab.ucdavis.edu/CAbeeAssociations.html>.

Nectar, pollen, and water are essential to the honey bee diet. Bees obtain carbohydrates for energy from nectar and honey, while protein, fats, vitamins, and minerals are supplied mostly from pollen. No single pollen source completely fulfills their nutritional needs. A diverse pollen diet helps to improve honey bees' immune and detoxification responses, which aid in dealing with pests, pathogens, and even pesticides (e.g., Alaux et al. 2010; Schmehl et al. 2014). Honey bees store honey and pollen in their hive to provide food when nectar or pollen is in short supply or unavailable, such as during drought or winter. During these times, it is important to monitor the amount of honey in the hive as well as the pollen stores available because a colony can starve if resources are depleted.

When colony inspections reveal little to no pollen in the combs or the weather may prohibit pollen and nectar foraging for more than a few days provide a nectar and pollen substitute to supplement nutritional needs of the colony. Feeding a pollen

substitute such as brewer's yeast or other commercially available supplements (e.g., Ultra Bee, MegaBee, Feedbee, Bee-Pro, etc.) is especially important in late summer, fall, and throughout the winter to build populations for overwintering survival and early spring pollination. A potential source of nectar supplement is sugar syrup, dry sugar, sugar candy, or other commercially available supplements (e.g., Pro-Sweet, high-fructose corn syrup, etc.). Feeding colonies directly in the hive is preferable, as open food sources can attract bees from nearby managed and feral colonies. Open feeding also facilitates conflict between bees and opportunistic robbers that can agitate a colony and increase defensive behavior, and food source sharing can increase parasite and pathogen transmission (Fries and Camazine 2001). Supplementing essential nutritional resources decreases robbing, minimizes disease spread, and helps curb bee defensiveness, which is good for the bees, good for beekeepers, and good for your neighbors.

Honey bees also collect plant resins and minimally process them into propolis or "bee glue." Bees use propolis to line the inside of their nest, plug holes, and in extreme cases, propolize (seal up) carcasses of unwanted hive intruders (e.g., mice) to minimize the spread of infection. While it might be frustrating to work with a heavily propolized hive, it might be worth the trouble. Research shows that propolis has antimicrobial properties and is beneficial to honey bee health (Simone-Finstrom and Spivak 2010).

Colony Inspection and Hive Manipulation

Take into account that weather conditions influence bee behavior and should plan to work with bees when conditions are favorable (sunny days with a temperature from 55° to 90°F, no rain, and minimal wind). Make sure that neighbors are not working or relaxing outdoors when you open hives and should try to perform hive manipulations as quickly as possible, with minimum disturbance to the bees. Extended hive manipulations, particularly removing honey, should be carefully planned to accommodate neighbors' activities. Ensure that no bee comb or other material that might encourage robbing is left on the ground at the apiary site. All such materials should promptly be disposed of in sealed containers

or immediately placed in a building or other bee-proof enclosure. This minimizes bee robbing behavior and mitigates a potentially hazardous situation. Use smoke when working bees and should smoke hive entrances before mowing or trimming vegetation in the hive area. Minimizing vibrations from machinery used around hives is crucial to avoid agitating the bees. Clippings and exhaust should be directed away from hive entrances.

Good stewardship and maintenance of colonies includes regular inspection to gauge overall colony health and resource availability and to provide a general presence in case neighbors may have questions. Inspecting hives once every couple of weeks on average during the most active foraging period (10 A.M. to 3 P.M.) should provide the beekeeper with developing knowledge of the colony status and any required adjustments, treatments, or equipment maintenance. The frequency of colony inspection depends on the season. For example, during the winter (or when temperatures are below 55°F), colonies should be examined minimally or not at all. Routine colony inspections become more critical in the spring around times of great brood expansion (which may lead to swarming) and later in the season when food resources dwindle (which may lead to starvation, defensiveness, or disease transmission). The exact timing of these events depends on the area of the state where you are keeping bees; it is advisable to join a local beekeeping club and learn from more experienced local beekeepers. To find your local bee club in California, see the U.C. Davis E.L. Niño Bee Lab website, <http://elninobeelab.ucdavis.edu/CAbeeAssociations.html>.

To perform colony inspection, prepare all the necessary equipment and tools before heading out to the hives. Always wear personal protective equipment (PPE) such as a bee jacket, suit, or a veil that protects the head and neck area. To minimize the risk of bee stings, some beekeepers chose to wear gloves, but be aware that this can significantly affect dexterity and in some cases can cause greater bee agitation. Even if you have never had an allergic reaction to bee stings, you can become allergic to bee venom unexpectedly, so it is best to minimize the potential risk.

Approach bee hives from the side while smoking the entrance lightly (3 or 4 puffs). After about 15 seconds, use your hive tool to remove the top cover and puff some smoke over the top frames. Never approach or stand in front of the hive; blocking the flight path may agitate the bees. Smokers can be fueled with a variety of materials, including fine animal bedding (wood chips), pine needles, cotton, burlap, etc. The most practical way to start the colony inspection is to loosen the propolis between the frames by using a hive tool and start with one of the outermost frames. Take the frame out slowly with both hands and inspect it carefully while keeping the frame above the open hive. This minimizes the risk of losing the queen, because if she falls from the frame she will likely fall back into the hive instead of on the ground. Normally, the first frame will have nectar and honey stores on it. While the queen is rarely on this frame it is prudent to always check for the queen before proceeding with the inspection. If the queen happens to be on the first frame, remove the next frame and place the first one back in the hive. If the queen is not on the first frame, you can place it on the ground vertically and lean it against the hive. In fact, pay close attention to locating the queen and ensuring that she is not lost or damaged during the inspection. Never place the frame where the comb and the bees on it can be disturbed.

Examine the remaining frames in a similar manner, except that you should place subsequent frames back in the hive immediately upon inspection and in the order in which they were removed. It is especially important to place any brood frames back in the brood chamber in the middle of the colony. Once the inspection is completed, place the first frame in the outermost position in the hive box from which it was taken. Push frames close together and place the top back in its place. When placing the top back on the hive, disperse any bees clustering on the edges of the box with the hive tool or smoke to minimize crushing them.

During the inspection, check

- the queen and eggs
- the size of the colony population and the brood pattern (e.g., brood frames should have few empty cells)
- the amount of stored food (sufficient pollen and honey)
- whether the larvae are well fed
- the presence of pathogens or pests:
 - Varroa mites, which may be seen on adult bees or developing larvae
 - viruses such as deformed wing virus (DWV), characterized in workers by deformed, shriveled wings
 - bacterial pathogens such as American foulbrood (AFB), characterized by sunken and punctured brood cappings and an unpleasant smell
- equipment that should be replaced
- any other signs not characteristic of a normal healthy colony

If you discover signs of pests, parasites or diseases you should act immediately to rectify the issue. For help, please contact your local University of California Cooperative Extension office, agricultural commissioner's office, local bee club, or the U.C. Davis E. L. Niño Bee Lab. A great varroa mite management resource is the Honey Bee Health Coalition's website "Tools for Varroa Mite Management," honeybeehealthcoalition.org/varroa/.

Queens

The queen is arguably the most important individual in the colony because she lays all of the fertilized (female, worker) eggs, increasing the colony population. During the hive inspection, take note of queen's presence or absence and whether she is the original marked queen. Maintaining a marked queen is useful for quickly locating the queen and referencing her age (see table 1). Marking a queen allows you to determine whether the colony has gone through requeening. This is particularly important if you are trying to maintain a specific bee stock or prevent Africanization of the colony. However, it is not always possible to find the queen, as they tend to move from frame to frame, so you should note the presence of fresh eggs (eggs still standing up have been laid within the past 48 to 72 hours).

Table 1. International queen marking color code

| Color | Year ending in |
|-----------------|----------------|
| white (or gray) | 1 or 6 |
| yellow | 2 or 7 |
| red | 3 or 8 |
| green | 4 or 9 |
| blue | 5 or 0 |

In any instance in which a colony exhibits unusually aggressive defensive behavior, such as stinging or attempting to sting without provocation, or exhibits an unusual disposition toward swarming, it is strongly recommended that you promptly requeen the colony with a queen of known European stock. This is particularly important for ensuring your safety and the safety of your neighbors. Please note that it is not always possible to requeen the colony, as the workers may not accept the new queen. Likewise, it might

be difficult to acquire a queen due to low supplies or improper season. Inquire with your local bee association to locate available queens. Remove the old queen at least 24 hours before requeening. Introduce the new queen in a queen cage without attendants and place her between the two brood frames toward the top of the frame (fig. 3). To improve acceptance of the queen, spray the queen cage and the bees in the proximity of the queen cage with 50% sugar water solution. Check in 2 or 3 days to see whether the queen has been released or perhaps not accepted by the workers. If a queen cannot be located and the colony is not overly defensive, the queenless colony can be combined with a colony that has a queen. To combine colonies, place a single perforated sheet of paper (e.g., newspaper) between the two colony boxes (fig. 4) to provide a barrier so the workers do not attack each other and allow them to slowly get accustomed to the smell of the new colony as they chew through the paper to remove it. If an excessively defensive colony cannot be requeened, move it out of an inhabited area or abate (destroy) it.

Figure 3. An easy approach to installing a queen is to cage her in a plastic queen cage and cap the cage with grass. Spray the cage with the queen in it with 50% sugar solution in water. Push the queen cage gently into the wax on top of a frame with emerging worker bees and place the frame back into colony next to another frame with emerging workers.
Photos: Bernardo Niño.

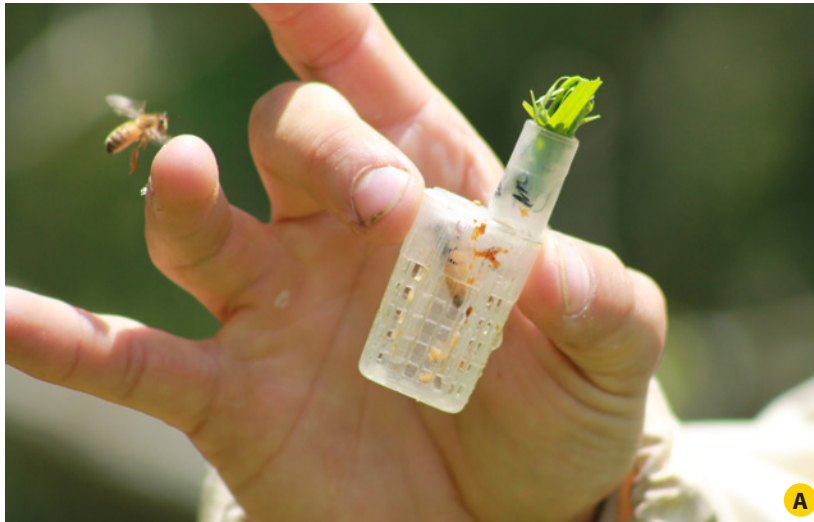


Figure 4. Colonies can be fairly easily combined by placing a sheet of paper (e.g., newspaper, butcher paper, etc.) larger than the dimensions of a hive box on top of the bottom brood box of one of the hives. The paper should be scored with a sharp object such as a hive tool; the hive box from the second colony can then be placed on the newspaper. This allows for gradual mixing of the workers minimizing unnecessary aggression between workers and the aggression of “foreign” workers towards the queen. *Photos: Bernardo Niño.*



Recordkeeping

Declines in pollinator health have left the general public and scientists with many unanswered questions. Without accurate recordkeeping over time, valuable information will be lost and human understanding of bee population biology that informs beekeeping best management practices will be limited. People who are dedicated to tracking accurate information about their honey bee populations can be helpful in building the scientific base for understanding the contemporary challenges of honey bee management. For example, Beetight (<https://www.beetight.com/>) and Hive Tracks (<https://hivetracks.com/>) are software products that provide beekeepers with web-based and mobile applications for recordkeeping and data management, making these tasks a bit more manageable. For each hive, it is advisable to record the following information:

- queen’s race, name of breeder, color mark or number, and introduction date
- supersedure and/or swarming dates
- records of brood frame marking for the purpose of removal and transition
- dates and types of supplemental feeding
- dates of equipment introduction, such as new frames and foundation (can be written on frames)
- dates (and if possible densities) of pest and pathogen presence, e.g., *Nosema* spp., varroa mite, chalkbrood, AFB (please note that, under California law, colonies with AFB must be abated), European foulbrood, wax moth, etc.)
- pest treatment types and management methods
- inspection dates and notes on inspector’s key observations
- dates of honey extraction
- hive location and movement dates

Keeping good hive records contributes greatly to your success as a beekeeper.

Preventing Swarming

Swarming is a natural process of honey bee colony reproduction that occurs chiefly from spring to early summer. To prevent or minimize swarming, take reasonable precautionary measures. For example, brood chamber manipulation (removing frames of brood to slow down the population growth) or adding extra supers with empty frames can reduce the swarming impulse by providing the colony with extra space to grow. Destroying queen cells can also help prevent colonies from swarming. Colony splitting provides more space, as the colony is basically divided in half and the new empty frames are then added into new “daughter” colonies to allow for growth. New colonies will require either a new queen or queen cell, or you can simply let the colony rear a new queen by ensuring that there are sufficient eggs or young larvae. When splitting, be aware of the numbers of colonies that can be supported at the location and move extra colonies to another location if necessary. While swarms rarely pose a threat, neighbors may be alarmed by the sight; thus, collect swarms as soon as possible. If you cannot collect the swarm yourself, contact your local beekeeping association, as they usually have a list of volunteers willing to remove and collect a swarm (e.g., <http://www.californiastatebeekeepers.com/links-affiliated-clubs.html> or <http://elninobeelab.ucdavis.edu/CABeeAssociations.html>). Alternatively, county agricultural commissioners and local University of California Cooperative Extension offices may also provide a list of contacts. Once retrieved, requeening the colony with known gentle, European stock is advised, particularly in areas known to have established Africanized honey bee populations, such as San Diego County (Kono and Kohn 2015; see also <http://www.sandiegocounty.gov/awm/bees.html>).

Supporting Honey Bee Colony Health by Using an Integrated Pest Management (IPM) Approach

Knowledge is power, and familiarity with what is happening in a hive provides you with a better working understanding of honey bee biology and their interaction with various pests and pathogens. Regular hive inspection is recommended, but overinspection can disrupt normal colony functions. Regular inspections and continued

education allow beekeepers to monitor hives for colony stressors and recognize the symptoms of common maladies. Common problems in California apiaries include

- parasites such as varroa mites (*Varroa destructor*) and *Nosema* spp.
- viruses: common viruses include deformed wing virus (DWV), black queen cell virus (BQCV), acute bee paralysis virus (ABPV), chronic bee paralysis virus (CBPV), Israeli acute paralysis virus (IAPV), and sack brood virus (SBV)
- bacterial pathogens, such as causative agents of AFB and EFB
- poor nutrition
- potential exposure to pesticides.

For additional information, see the eExtension website, http://www.extension.org/bee_health). *Prevention rather than intervention* is key. Having a preventive plan and a treatment-response plan will help minimize the impact on overall honey bee colony health. Managing colony health also minimizes the spread of pathogens and parasites to neighboring colonies. Ensuring proper nutrition can go a long way in minimizing negative impacts of pests, pathogens, and pesticide exposure (Alaux et al. 2010; DeGrandi Hoffman et al. 2010; Di Pasqual et al. 2013; Schmehl et al. 2015).

Integrated pest management (IPM) is a method of dealing with pests, parasites, and pathogens that differs from sole reliance on chemical treatment (see table 2 for a list of products for use in hive management). IPM is based on the foundation that long-term pest control cannot be achieved by trying to chemically eradicate pests or parasites; rather, successful pest control requires an ecosystem-based strategy for long-term prevention of pests through a suite of techniques such as habitat manipulation, cultural practices, and use of biological control agents (UC IPM 2016). IPM is a decision-making process based on understanding host and pest biology and host-pest interactions. It involves using tactics such as genetic and cultural methods, mechanical and physical methods, biological control, chemical treatments (fig. 5), and timing treatments to critical stages in the life cycles of the target organisms.

Table 2. Pesticides used for management of various pests in honey bee colonies. Note that some pesticides listed are not registered for use in California.

| Pesticide | Active ingredient | EPA registration no. | CDPR registration no. | California signal word(s) | Pest controlled | Quick reference application information* |
|--|---|----------------------|-----------------------------|---------------------------|---|---|
| Apiguard | thymol 25% | 79671-1 | 79671-1-AA | Danger | varroa mite (also aids in control of tracheal mite) | Application depends on the method of administration, but a 1/4" spacer is usually needed to apply. Recommended application is in the fall and when temperatures are 60° to 105°F. If infestation is severe, it can be used in the spring. Cannot be used when honey supers are on. |
| Apistan | tau-fluvalinate 10.25% | 2724-406 | 2724-406-ZA | Caution | varroa mite | 1 strip per 5 frames of bees. Works by contact. Place in brood chamber area. Length of treatment is minimum 42 days and maximum 56 days. Generally, spring and fall and when temperatures are above 50°F. Cannot be used when honey supers are on. |
| Apivar | amitraz 3.3% | 87243-1 | 87243-1-AA | Warning | varroa mite | 1 strip per 5 frames of bees. Works by contact. Place in brood chamber and areas of high bee activity. Length of treatment is minimum 42 days and maximum 56 days. Can be used year-round but recommended in spring and fall. Cannot be used when honey supers are on. |
| API Life Var | thymol 74.09% eucalyptus oil 16.00% L-menthol 3.73% | 73291-1 | Not registered in CA | Warning | varroa mite | Cut 1 pack in half. Each half pack will treat one colony. Each half pack will contain two pieces, break the two pieces in half and place the 4 pieces around the edge of the brood nest, not directly above. Total length of treatment is maximum 32 days and can be treated up to two times per year. Temperatures must be 64° to 95°F. Cannot be used when honey supers are on. |
| Avachem<<AU: I moved this up in alpha order--OK?>> | sucrose octanoate esters 40% | 70950-2 | Not registered in CA | Warning | varroa mite | 3 tbsp. per 2 gal of water. Use garden-type hand sprayer or backpack sprayer to apply. Repeat application at intervals of 7 to 10 days at 3 times per infestation. Apply at first sighting of varroa mites. Apply in early morning or late evening and not when temperature is below 55°F. |
| CheckMite+ | coumaphos 10% (organophosphate) | 11556-138 | 11556-138-AA-61671 | Caution | varroa mite and small hive beetle (SHB) | For varroa control use 1 strip per 5 frames in brood chamber. For SHB control use 1 strip on cardboard at bottom of hive. Length of treatment is 42 to 45 days. Recommended use in spring (before first honey flow) and fall (after last honey flow). Cannot be used when honey supers are on. |
| GardStar | permethrin 40% | 39039-8 | 39039-8-AA | Warning | small hive beetle (SHB) | This product is never to be used inside the hives or when bees are active, as it is highly toxic to bees. It is used as a soil drench in controlling larval SHB burrowing in the soil to pupate. For use with sprinkler can, pump, or low-pressure sprayers, use 5 ml in 1 gal water (a.i. 0.05%). For existing infestation, wet ground 18 to 24 inches around the hive (1 gal per 6 hives). Apply in the evening when bees are not active. For cleanup of apiary, drench the entire apiary surface 24 to 48 hours prior to hive placement. |

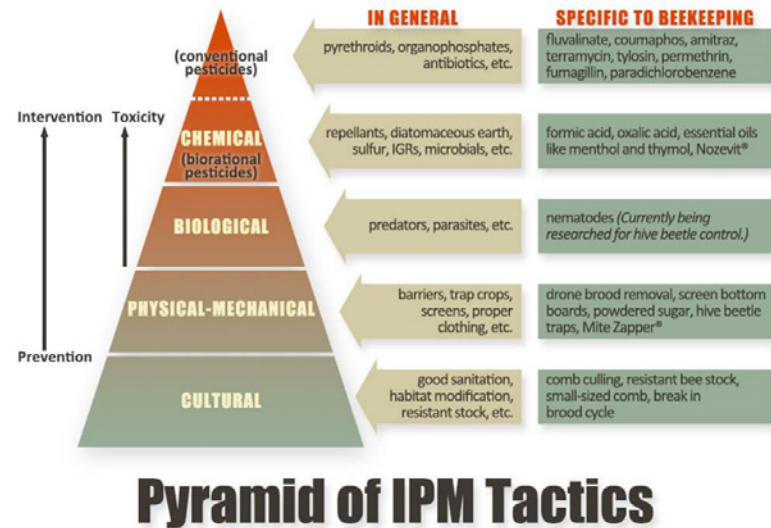
(Continued)

Table 2. Pesticides used for management of various pests in honey bee colonies. Note that some pesticides listed are not registered for use in California. (continued)

| Pesticide | Active ingredient | EPA registration no. | CDPR registration no. | California signal word(s) | Pest controlled | Quick reference application information* |
|------------------------|--------------------------------------|----------------------|-----------------------|---------------------------|------------------|--|
| HopGuard II | potassium salt of hop beta acids 16% | 83623-2 | 83623-2-AA | Danger | varroa mite | 1 strip per 5 frames of bees to be applied only in brood chamber. Length of treatment is 4 weeks. Can be used maximum of 3 times per year (total of 6 strips). Suggested use when brood is reduced or not present. Use permitted during honey flow. |
| Mite-Away Quick Strips | formic acid 46.7% | 75710-2 | 75710-2-AA | Danger-Poison | varroa mite | Full dose (2 strips) or half dose (1 strip) per single brood chamber containing at least 6 frames of adult bees. Length of treatment 7 days, but no need to remove the strips. Recommended to apply in late summer or fall. Temperatures should be 50° to 85°F. Use permitted during honey flow, but do not place strips in honey supers. |
| Mite-A-Thol Menthol | menthol 99.94% | 61671-1 | 61671-1-AA | Danger | tracheal mite | Place one packet on top bars of frames. Length of treatment is minimum 28 days. Recommended to apply in spring. Temperatures must be 60° to 80°F. Remove treatment at least 30 days prior to putting on honey supers. |
| Oxalic Acid Dihydrate | oxalic acid dihydrate 97.0% | 91266-1 | Not registered in CA | Danger-Poison | varroa mite | Use drenching or vaporizer methods. See label for exact application dosages. Suggested use when brood is reduced or not present. Cannot be used when honey supers are on. |
| Para-moth Insecticide | para-dichlorobenzene 99.94% | 61671-2 | Not registered in CA | Warning | greater wax moth | To be used for stored equipment without bees present. Recommended dose is 6 tablespoons of crystals for 5 supers. Tightly stack supers, cover any holes with tape, place crystals on a piece of paper on top bars, and tightly cover with a lid. Examine every 2 to 3 weeks. If crystals are no longer present, reapply. Air out supers thoroughly prior to adding bees. |
| SucraShield | sucrose octanoate 40% | 70950-2-84710 | Not registered in CA | Warning | varroa mite | No information available. |

Note: *These are not pesticide application instructions. This is a quick reference guide for beekeepers to be aware of pesticides that might be available for them to use in their IPM approach. Please NOTE that some pesticides are not registered for use in California. Beekeepers should never use nonregistered chemicals, as it can be a violation of state or federal laws and can have negative consequences for bees and beekeepers. Prior to application, read the pesticide LABEL thoroughly and adhere to application instructions. A great varroa mite management resource is the Honey Bee Health Coalition's "Tools for Varroa Mite Management" guide and can be found here honeybeehealthcoalition.org/varroa/.

Figure 5. The pyramid of IPM tactics, showcasing various management techniques for maladies affecting honey bee colonies. The arrows indicate increasing toxicity of management strategies used, from the bottom of the pyramid (prevention) to the top of the pyramid (intervention). Please note that while biological control via microorganisms (e.g., fungi, bacteria) is often considered less harmful than the use of chemical control, it could have negative effects on nontarget organisms. *Source:* Modified with permission from Beekeeping Basics by Nick Sloff, The Pennsylvania State University, 2016.



For example, to minimize the impact of varroa mites, you can requeen a colony with hygienic bee stock (e.g., varroa-sensitive hygiene, Minnesota hygienic, etc.) and perform drone comb removal in the spring while monitoring varroa mite levels with established techniques (see the eExtension website, http://articles.extension.org/pages/33632/methods-for-varroa-sampling#.U_362sVdU7k); monthly monitoring is recommended during the active bee season). Managing varroa mites should also help minimize the impact of viral infection since many viruses can be transmitted by *Varroa*. No commercially available treatment for viral infection currently exists, although a product has been formulated but it was not widely used in the commercial market.

If a pesticide application is required, read the label before you buy the product and again before you use it, then carefully follow the label instructions to avoid unintended impacts on the colony, the environment, and the applicator. Be sure to use PPE to minimize potential negative impacts on the applicator. Remember, preventing pests in the first place is the best course of action; chemicals should be applied when pest populations are above an action or economic threshold (if established), rather than on a timed schedule (see the eExtension website, http://articles.extension.org/bee_health).

The limited use and rotation of chemicals to decrease varroa mite populations to less-harmful levels reduces possible contamination of hive products and delays the development of chemical resistance in mites. *Avoiding contaminating hive products by following pesticide label instructions to ensure consumer safety.* Limited use of miticides also reduces the exposure of bees to potentially harmful chemicals. This is especially significant because certain miticides used to kill varroa mites are known to have negative health consequences for honey bees (Johnson et al. 2010). Starting at the base of the IPM pyramid (fig. 5) and using multiple IPM tactics is safe, profitable, and environmentally friendly.

As of January 1, 2017, a new FDA (Food and Drug Administration) rule requires that beekeepers acquire a prescription or veterinary feed directive (VFD) from a veterinarian who is required to diagnose diseases in order to provide a prescription or VFD. Please note that under California Law any colonies determined to have AFB must be abated. For more information see the Food and Agriculture Code §§ 29040–29056 (https://leginfo.ca.gov/faces/codes_displayText.xhtml?lawCode=FAC&division=13.&title=&part=&chapter=1.&article=14).

For more information on management of *Nosema* spp., see <https://articles.extension.org/pages/73564/how-is-nosema-disease-treated>. For management of small hive beetle (SHB), see http://articles.extension.org/pages/60425/managing-small-hive-beetles#.U_-X2Hbp8_c

Transportation of Hives

It may be necessary to move hives for honey extraction, queen rearing, or other reasons. Colonies should be provided with excellent ventilation during the moving process and should be moved during temperate weather conditions to avoid overheating.

Prepare for the move by securing foragers inside the hive either at dawn or dusk. If the hive is closed up during the day, foragers out in the field will be left behind; this should be avoided at all costs, as it can cause nuisance for neighbors and can lead to increased agitation in returning foragers. Close up the hive by stapling a piece of no. 8 (1/8-inch) hardware cloth over the main entrance, making sure it is the correct length and fits snugly over the entrance. Inspect the hive for other entrances or gaps between boxes and cover these with duct tape or other patch material. Secure hives in the transport vehicle to prevent shifting while in transit (straps or hive staples can be helpful). Move hives to the new location as soon as possible, again limiting aggressive movements and vibrations. Open the hive once it is in position. Moving hives short distances can confuse foraging bees. To relocate a colony a short distance, first move it no less than 2 to 3 miles away, wait 2 to 3 weeks, then move the colony to the new location. Preparation and forethought will help in making the relocation successful and will avoid potential hazards, such as bee losses due to improper ventilation or hive damage from falls due to improper fastening.

HUMAN—BEE INTERACTIONS

Bee Allergies

When agitated, bees enlist a defensive stinging behavior and inject venom into their target. They become especially agitated when their nests are disturbed. Foraging or swarming bees are unlikely to sting unless directly disturbed. Honey bee workers have a barbed stinger;

when they sting, their stinger remains in the skin of the target with the venom sac and musculature, which continues to pump venom into the body. In the process of stinging, a substantial portion of the abdominal structure is pulled out, causing the bee to die. Thus, honey bee workers can each sting only once. If you are stung by a honey bee, remove the stinger immediately by scraping it to the side with your fingernail or other flat, sharp object. Honey bees also release an alarm pheromone when they sting to designate the target for other defending bees. In order to prevent the pheromone from attracting other bees, puff a bit of smoke on the area that was stung or rub dirt over the area to cover up the smell. The alarm pheromone of honey bees smells like bananas. Drones are incapable of stinging, since they do not possess a stinger; queens can sting (they do not have a barbed stinger). A sting by a queen is extremely rare.

A honey bee sting can cause two types of reactions: local and systemic. Most people exhibit a local reaction to the sting, such as swelling, redness, itchiness, and mild to moderate pain. This is normal and should subside within a few days. Placing ice on the affected area can help, as well as taking an antihistamine. However, if symptoms occur farther from the area of the sting, the reaction may be systemic; contact a physician immediately. Symptoms may include rash and itchy hives all over the body, stomach cramps, nausea, vomiting, diarrhea, dizziness, severe headache, swelling that is not in the area of the sting (particularly worrisome is swelling of the face, neck, tongue), shortness of breath or difficulty swallowing, shock, unconsciousness, or drop in blood pressure, with the most severe symptom being the inability to breathe (associated with a severe allergic reaction, or anaphylaxis). These symptoms can occur within seconds or 30 minutes after stinging incident. People who are allergic to bee venom should carry an epinephrine auto-injector with them at all times which can be obtained via a prescription from a physician. Only about 0.1 to 0.2 percent of the population (1 to 2 people out of 1,000) is severely allergic to bee stings.

For further information, see the USDA Agricultural Research Service Bee Stings website, <http://www.ars.usda.gov/Research/docs.htm?docid=11067&page=1>.

Bee Phobia

Fear and anxiety are distressing emotions stimulated by real or imagined danger, evil, or pain. Phobias, the persistent and illogical fear of specific objects, activities, and situations, are common, with concerns regarding animals being among the most common of all. Pain and swelling associated with stings from venomous insects, the issue of mass envenomization (especially associated with Africanized honey bees), and problems of sting-related allergies can promote a fear of bees, hornets, and wasps (Mathew et al. 2011; West et al. 2011). Münstedt and Mühlhans (2013) surveyed and analyzed peoples' views about various arthropods in relation to potential dangers and ecological and economic benefits, with an emphasis on the honey bee. Their questionnaire differentiated between the reasonable and rational aspects of dangers associated with arthropods and emotional fear. Stinging Hymenopterans (hornets, wasps, and bees) were considered to be the most dangerous arthropods, while hornets and spiders produced the highest levels of anxiety and disgust from respondents. However, Münstedt and Mühlhans (2013) found that the more knowledge people had about the arthropods, the less disgust they had toward the animals.

Therefore, improving knowledge about arthropods such as honey bees and their ecological and agricultural importance should be a useful approach to reducing people's anxiety and disgust. Generally, negative interactions between people and honey bees can be avoided by watching for "flight paths." If there is back-and-forth flight traffic to and from a specific spot, it is likely that insects are nesting there. It is a good place to avoid. These are important considerations for beekeepers, who are sometimes confronted by anxious and frustrated neighbors who insist that bees be removed. Understanding people's concerns and using this opportunity to educate them about the importance of honey bees and their value to our natural world may lead to a greater acceptance of backyard beekeeping. Providing a jar of your own honey to the neighbors can go a long way as well!

GLOSSARY

- absconding.** The total adult population abandoning of a nest or hive at once.
- apiary.** A place where honey bee hives with living colonies are kept.
- apiarist.** A professional or amateur manager of hived honey bee colonies.
- apiculture.** The management of hived honey bee colonies.
- bee colony.** *Sensu stricto:* All living members of the honey bee population, including eggs, larvae, pupae, and thousands of adults. *Sensu lato:* All living members of the honey bee colony plus the hive, combs, stored pollens, and honey.
- beehive (hive).** The enclosed space in which a bee colony is living. For beekeeping purposes, a removable-frame housing for a honey bee colony.
- beekeeper.** *See* apiarist.
- beekeeping.** *See* apiarist.
- beeswax.** Substance formed by the conversion of sugar to wax in the abdominal wax glands of worker honey bees.
- brand.** Beekeeper-specific identification code for marking hives, frames, and other beekeeping equipment.
- brood chamber or brood box.** Bee boxes in which brood rearing (eggs, larvae, pupae) occurs.
- brood food.** Glandular secretions from nurse bees fed to developing larvae. For example, royal jelly is produced by workers and fed to larvae destined to become queens. Worker food, a mixture of glandular secretions, pollen, and honey, is fed to larvae destined to become workers.
- economic threshold.** Density of a pest or level of infestation at which the treatment will yield economic returns or at which the cost of damage or loss would cost more than the cost of treatment.
- ecosystem services.** Services such as pollination provided by nature (e.g., honey bees) that benefit humans.

flight path. The route taken by many bees leaving or returning to their hive.

foraging bees (foragers). Bees seeking water, food, or propolis.

hive. See beehive.

hive products. Products either collected, produced, or processed by honey bees and used for human consumption or other purposes, including but not limited to honey, beeswax, pollen, propolis, and royal jelly.

hive staples. Long staples, (typically 2”) used diagonally across hive body junctions to prevent boxes from shifting during hive transportation.

honeycomb (comb). Formation of six-sided beeswax cells (often within a frame inside a hive) housing honey, pollen, nectar, or immature stages of honey bees.

honey. A concentrated sugar solution originating from nectar secreted by plants and sucking insects, which is collected, processed and dehydrated by honey bees.

honey extraction. The removal of honey from combs for human consumption.

honey flow. A period of the season during which nectar is abundant enough to exceed the daily consumption by individual bees and is processed into and stored as honey inside honeycombs as a food resource.

honey super. Box or boxes containing frames placed above brood boxes or brood chamber and separated by a queen excluder for collection of honey.

nucleus colony. A small, three- to five-frame beehive containing a queen, workers, drones, brood, etc.

package bees. A number of adult bees (2-3 pound packages are most common), with or without a queen, contained in an enclosed, ventilated shipping cage (also containing a sugar source) for transportation.

pollination. The transfer of pollen by bees from anthers to stigmas of flowers for the purpose of plant fertilization.

propolis. A resin-like mix of bee saliva, beeswax, and substances gathered from plants that bees use for sealing and maintenance in hives.

robbing. Bees taking food stores from another colony in order to store it in their own nest.

royal jelly. A milky liquid secreted by honey bees containing proteins, sugars, and other substances that is fed to bee larvae.

strong colony. A populous honey bee colony.

super. A bee box placed above the brood chamber.

swarm. A flying mass (sometimes a stationary cluster) of adult honey bees, including workers, queen, and drones, attempting to locate a new home; a natural process of colony reproduction.

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